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THE

GLASGOW MEDICAL JOURNAL.

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No. I. January, 1909.

ORIGINAL ARTICLES.

SOME PROBLEMS CONNECTED WITH DISEASES OF THE PROSTATE.[1]

By CUTHBERT S. WALLACE, F.R.C.S. Eng., B.S. Lond.,
Dean of St. Thomas's Hospital Medical School.

Anatomical.—In the first instance, I would call your attention to some anatomical points, the appreciation of which will make clear one of the problems which I wish to place before you. It is well to remember that the prostate is developed from glands found in the urethra. It therefore follows that the connection between the urethra and the prostate must be intimate. The urethra being the evacuating channel of the bladder, it follows that the connection between the prostate and the bladder must also be intimate.

The bladder is, so to speak, perched on the base of the prostate; the external longitudinal fibres of the bladder are inserted into this organ. The inner circular fibres at the trigone become condensed, and at the lowest portion of the trigone the concentration is carried still further so that the

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[1] A lecture delivered to the Medico-Chirurgical Society of Glasgow on 20th November, 1908.

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collection of muscle here forms the internal sphincter. It has been said that there is not enough muscle here to form a proper sphincter, but, as a matter of fact, if you look at such a vertical section taken through the internal meatus, you will see that there is a very appreciable mass of muscle. Posteriorly the fibres run in a circular direction, but in front the order is somewhat lost, and they seem to run obliquely both to the surface of the bladder and to one another.

If we now follow the urethra down and study it by means of an antero-posterior section, it will be seen that there is next to the urethra a space which is devoid of gland tissue. This space is partly made up of circular fibres and partly of internal longitudinal fibres, which are continued down from the trigone area. Below the ejaculatory ducts these longitudinal fibres become very strongly marked, especially where the prostatic joins the membranous urethra. The circular fibres forming the sphincter as they pass down into the urethra become gradually separated by prostatic stroma until they no longer form the continuous circular coat. The gland tissue of the prostate, which is separated from the bladder by the whole thickness of the internal sphincter, gradually approaches the urethral canal, but everywhere is separated from the mucous membrane by a more or less continuous muscle layer, except where this layer is perforated by the ducts of the glands.

Towards the apex and on the anterior surface of the prostate we come across a circularly disposed striped muscle. This is collected into a more or less definite band at the apex, and becomes continuous there with the constrictor urethræ, this latter being again a striped muscle.

The prostatic urethra is thus an essentially muscular tube.

Position of the bladder sphincter.—The first point I would call your attention to is the doubt which still remains as to what constitutes the true sphincter of the bladder. In the first place, one can put out of court the prostate itself, for the obvious reason that it is not present in the female. We still have, however, three masses of muscle to consider—the internal sphincter, the middle sphincter or muscle of Henle, and the external sphincter or the constrictor urethræ. The muscle of Henle is rudimentary in a man, though highly developed in such animals as the sheep, and, so far as we are concerned, it can be dismissed. It, therefore, remains to decide whether the internal sphincter or the external sphincter is the true sphincter of the bladder. The internal sphincter is unstriped muscle, the external sphincter is the striped muscle.

It used to be considered that, when the bladder was full, the prostatic urethra was dilated, and that the escape of urine was prevented by the compressor urethræ.

Leedham Greene has shown, by means of skiagrams taken of a bladder distended with a bismuth suspension, that the internal sphincter remains closed, and that the prostatic urethra is not dilated.

Arthur Ball has shown that in the dog the urethra can be divided at the apex of the prostate without causing incontinence. He has also shown that a large portion of the prostate, practically the whole of it, may be cut away and yet the bladder retain its urine. In man he shows that the same condition holds good. He proved it in this way. In the course of a perineal prostatectomy the membranous urethra was incised and a tractor introduced into the bladder. The attempt at nucleation failed, and the prostate was cut away piecemeal. The prostatic urethra was destroyed, but the mucous membrane of the bladder was not injured. A tube was inserted into the bladder and retained for five days. When the tube was removed the patient had complete control. In this case, both the prostate and the compressor urethræ were so damaged as to be unable to perform anything like a sphincter function.

Median perineal section, in which the urethra is entered just in front of the prostate, does not lead to incontinence. Young, of Baltimore, told me that not long ago he was called upon to operate upon a case of injury, in which the urethra had been torn completely away from the prostate, and yet the bladder was distended with a large amount of urine. It would appear, therefore, from the above observations, that the internal sphincter is the real sphincter, and that its relaxation commences the act of micturition. It is possible, of course, that in cases of need the external sphincter is called to the help of the internal one. It is more natural that an unstriped muscle should fulfil a sphincter function than a striped muscle, because we know that sphincters in the other parts of the body are of the unstriped variety. The objection has been advanced, on the other hand, that it is difficult to imagine an unstriped muscle being under the power of the will, since some people consider that the relaxation of the sphincter is a voluntary act.

The anatomical conditions found after prostatectomy, however, raise another difficulty.

When we examine the state of a bladder some time after prostatectomy, it is found that the cavity from which the prostate had been enucleated, although it has shrunk, has not been completely obliterated. (Walker has found a small cavity as long as eighteen months after operation.) I would here remind you that the intra-vesical projection of the prostate causes a dilatation of the sphincter. It is argued, because a cavity is left in the bladder after prostatectomy, that the internal sphincter must be still dilated, and therefore functionless, and since control in these cases is perfect it seems that the external sphincter must be the true sphincter. This is at variance with the conclusions reached above. I think it is possible to afford an explanation of this apparent discrepancy. It is only a suggestion, and you must take it for what it is worth. It is this. When an intra-vesical projection of the prostate takes place the floor of the bladder is actually raised so that the mucous membrane is reflected off the protruding prostate on to the bladder wall some distance above this sphincter. You will see that it would be possible in such a case for the sphincter to contract and yet a small cavity to be left in the bottom of the bladder corresponding to that portion of the bladder which was in contact with the sides of the intruding prostate.

Alterations in bladder and urethra.—Without going into the different forms that adenomata of the prostate may assume, it will be sufficient for my purpose if I indicate to you the different positions in which the adenomata most frequently appear. First of all, let us study a section of the organ taken transversely to the urethra at some point above the opening of the ejaculatory ducts. You will see that gland tissue exists at both sides of and behind the urethra, and in the latter situation both in front and behind the ejaculatory ducts, or, to put it in another way, between the floor of the urethra and the ejaculatory duct, and between the ejaculatory ducts of the posterior surface of the gland. The adenomata growing in the lateral masses of the prostate causes the urethra to be stretched in an antero-posterior direction, so that measured in such a section as we are studying it may reach as much as an inch or an inch and a half. If the growth is uneven, and takes place more on one side than on the other, the urethra may become distorted, and if the disparity of the growth is very marked the urethra may be even bent at a considerable angle in a lateral direction, and one adenoma come to lie immediately above an adenoma developed in the other side, the urethra being interposed between the two. An adenoma may also develop, and, indeed, commonly does, in that portion of the gland which lies between the posterior urethral wall and the ejaculatory ducts. It may be an isolated adenoma, or part and parcel of an adenomatous mass which has also developed in the lateral lobe.

By the time the adenomata have reached any size the urethral wall has usually become very thin.

Now, if a study is made of another section taken in a vertical antero-posterior direction, there are some other facts which come out. The commonest position to meet with adenomata in such a section is between the posterior urethral wall and the ejaculatory ducts. These adenomata, as I have said immediately above, may be either a separate growth, or more usually, according to my experience, it is one with a mass in a lateral lobe, or with masses in each lateral lobe, in which case it will form a horseshoe-shaped tumour.

It is very rare to meet with adenomata in that portion of the prostate which lies between the ejaculatory ducts and the posterior surface of the gland, and, incidentally, this is the reason that the posterior urethra wall below the ejaculatory ducts is often left intact after prostatectomy. The effect of the growth in the region just mentioned will be to push the upper portion of the urethra forward, with the result that the canal becomes bent at a well-marked angle, the apex of the angle being the point at which the ejaculatory ducts open into the urethra.

If the prostate becomes enlarged upwards, the adenomata will gradually cause a thinning of the sphincter muscle; if the process is continued they thrust aside the sphincter muscle and appear within the bladder as one of the many forms of intra-vesical projection.

The effect on the bladder of this growth is that the internal meatus is no longer surrounded by a muscle ring, this latter being stretched and pushed aside; the internal meatus, instead of being a dimple, may now be a patulous funnel.

The urethra is thus altered from a small, straight, muscular canal, to a distorted, dilated, non-muscular tube, with a more or less papulous mouth.

Explanation of symptoms.—One can now study how far these anatomical alterations will explain the symptoms in a case in which the enlargement of the organ is well marked. The interference with the sphincter will explain, in part at all events, the frequency of micturition. In the early stages the sphincter is merely thin, but its function must be considerably curtailed. When intra-vesical projection has become more marked, then the sphincter must be almost entirely put out of action. It is also easy to explain, I think, intermittent micturition by the valvular obstruction produced by distortion of the urethra, whether this obstruction be an antero-posterior or lateral direction. In such a case, the sphincter being deficient, micturition may be started and progress for a certain period, but directly the bladder begins to contract strongly it will force the overlying adenoma down upon the underlying one, and in such a way close the urethra and stop micturition. When the bladder ceases to contract the urethra will be again opened, and the same process repeated. Dribbling at the end of micturition may be accounted for, I think, by the interposition into the urethra of a long non-muscular section, so that no co-ordinated muscle wave can take place and empty the urethra.

Residual urine may be accounted for by the bladder becoming tired out, after many fruitless attempts to empty it, either from the presence of a valvular opening as explained before, or possibly to increased tension in the urethra caused by the rapidly growing prostatic tumours, or it may be due to an inability of the bladder to obliterate its cavity owing to the fact that the detrusor fibres no longer arise from a point, but from a disc. I can find no statement as to the shape assumed by the human bladder in the contracted form, though in the case of the dog it assumes a vertical sausage-shaped one.

Retention is really only a further stage in the train of symptoms producing residual urine, and must be caused by a similar condition of affairs. Thus it is easy to account for the symptoms met with in prostatic enlargement when the enlargement is well marked, but we have to remember that frequency of micturition, difficult or intermittent micturition, residual urine, and retention may be met with in cases where the physical alteration is absent or present to a very small degree. I myself should be extremely interested to hear the opinion of the Society on this point. I have throughout made no mention of any urinary infection, nor is it necessary for the production of such symptoms for infection to have taken place.

CHRONIC PROSTATITIS.

If we turn to a recent work on chronic prostatitis we find that the symptoms are classified under three heads, the sexual, the urinary, and the referred. They are given as follows:—

The sexual.—Diminished vigour, imperfect erections, painful erections, premature ejaculation, painful ejaculation, sexual hypersensitiveness, nocturnal emissions, prostatorrhœa.

Urinary symptoms.—Frequency, pain at the beginning of urination, pain during urination, pain at the end of urination, difficult urination, urgent urination, irritable prostate.

Referred symptoms.—Pain in the back, pain in the kidney region simulating renal colic, suprapubic, vesical, and penile pain, pain in the rectum, groin, testicles, buttocks, hips, thighs, knees, legs, and pain simulating sciatica.

Physical examination.—These cases are said to show the urethritis, prostatic shreds in the urine, vesiculitis as shown by induration, enlargement, tenderness, and peri-vesicular adhesions.

Cystoscopic findings.—Irregularity of the prostate margin, hyperæmia, and a definite elevation of the median portion of the gland. Examination of the prostate fluid obtained by massage is said to show pus, epithelial cells, finely and coarsely granular cells.

Cultivations from the prostated urethra after massage show various bacteria.

Thus, in a series of 19 cases, 6 cases showed organisms—(1) slender bacillus, 2; (2) staphylococcus albus, 3; (3) streptococcus pyogenes, 2; (4) organism not identified, 1. The staphylococcus albus can so often be found that its presence really means but little.

In another series of 120 cases of chronic prostatitis after gonorrhœa, gonococcus was found 47 times; macrococci, 119; bacilli, 15; bacteria, 14.

The microscopic findings are endo-glandular proliferation and desquamation, inflammatory infiltration of the periacinous stroma, and periacinous sclerosis. The acini are dilated, compressed, or destroyed.

I must say that I am rather sceptical about this disease, or rather its frequency. To read the journals, in America and on the Continent this seems a very common disease, but my own small experience would lead me to believe that chronic prostatitis is comparatively rare, and that many of the symptoms which are put down to this disease in America would be classified as those which belong to a sexual neurotic in this country.

In a large series of prostates removed from the *post-mortem* room, and cut and examined under the microscope, Dr. Dudgeon has hardly ever seen any instances of chronic inflammation as shown by presence of plasma cells. Even those cases which macroscopically would seem to fall under the sclerotic category, and which, when submitted to the microscope, show large bands of what would appear to be fibrous tissue, cannot be really classed as sclerotic, since the apparent fibrous bands, when examined by van Geisen's method, turn out to be largely composed of muscle fibre. It is quite true that some specimens exhibit signs of acute inflammation, and in such cases it is possible to see desquamation of the epithelium and polymorphonuclear leucocytes in the alveoli, but as far as the stroma goes there is really little or no evidence that this acute inflammation has produced any chronic change. Collections of leucocytes are often seen. They are no sign of inflammation, and are found in normal prostates and other glands.

THE CAUSATION OF ENLARGEMENT OF THE PROSTATE.

Is it a neoplasm? or does it result from dilatation of the alveoli caused by a contraction of the stroma about the duct?

The appearances of the growth do not point to any great dilatation of the alveoli. This may be proved by the fact that there is no relation between the size of the tumour and the size of the alveoli, which should exist if enlargement were due to dilatation. The bulk of an "adenoma" is a fairly close reproduction of the normal gland.

Again, there is no sign of chronic inflammation in these cases; no masses of fibrous tissue, and no cytological proof.

The question, however, still remains that a chronic inflammation might start a new growth in the same way that irritation of a tooth starts epithelioma of the tongue.

THE RELATION BETWEEN THE DIFFERENT FORMS OF PROSTATIC ENLARGEMENT.

The question to be answered is whether all forms of non-malignant enlargement are different stages in the same pathological process, or separate pathological entities.

Take two cases at point, in which there is considerable enlargement: the one due to presence of "adenomata," which readily shell out, and the other due to the "diffuse enlargement," in which enucleation is difficult or impossible. The macroscopic appearances are really almost identical, the greatest difference being the absence of the main external pathological capsule.

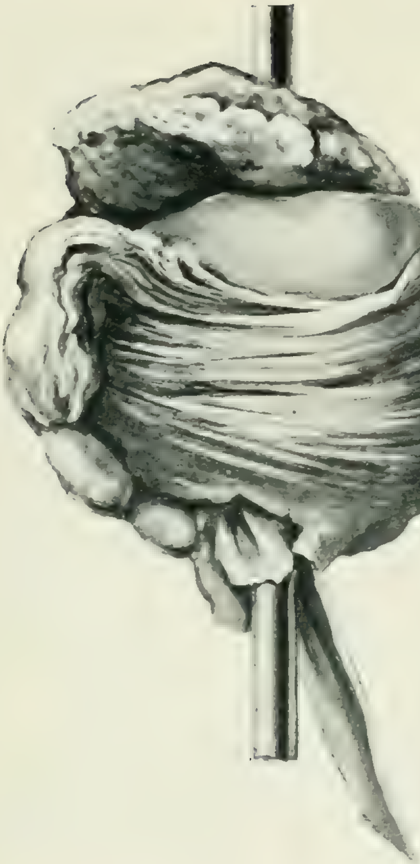

Fig. 1.

This specimen of carcinoma was removed by enucleation from the prostate of a man, C. P., aged 58, who had shown symptoms for five months. There was a well marked intravesical projection. Spontaneous micturition was never re-established. The specimen shows two masses—one on each side of the urethra, which is contained between them. It is surrounded by a "capsule" of circumferential fibres. It resembles the ordinary adenomatous tumour, except that the surfaces are rough and irregular.

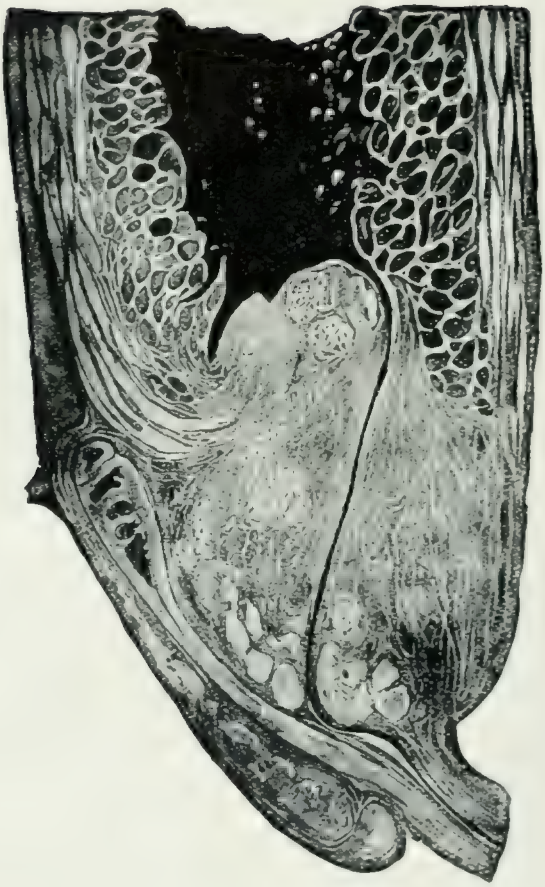

FIG. 2.

A sagittal section through a bladder and prostate. There is a slight intra-vesical projection. There is no sign of encapsulation, but numerous yellow-white areas have appeared which are most numerous toward the bottom of the gland. The fibrous tissue is slightly translucent. The spongy nature of the normal gland is entirely lost. A microscopical section shows spheroidal-celled carcinoma. The patient was 65 years of age, and had presented symptoms of prostatic trouble for about five years. There was a secondary growth in the right pleura.

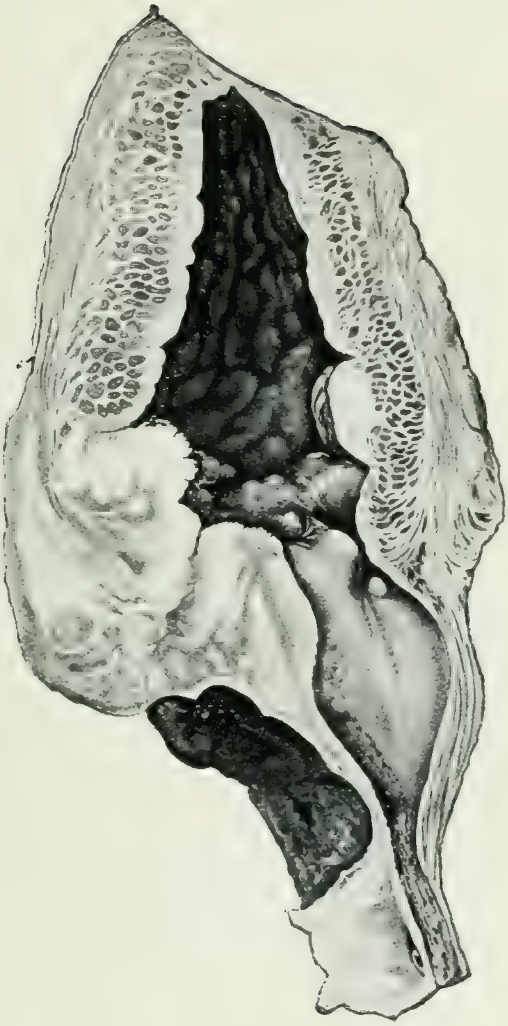

Fig. 3.

Carcinoma of the Prostate.

Vertical antero-posterior section of a bladder and prostate from a man, J. C., aged 84. The macroscopic appearances are somewhat similar to those seen in adenomata, but the growth has invaded the trigone, the anterior bladder wall, and the vesiculæ seminalis. Posteriorly is a cavity left by the breaking down of the growth.

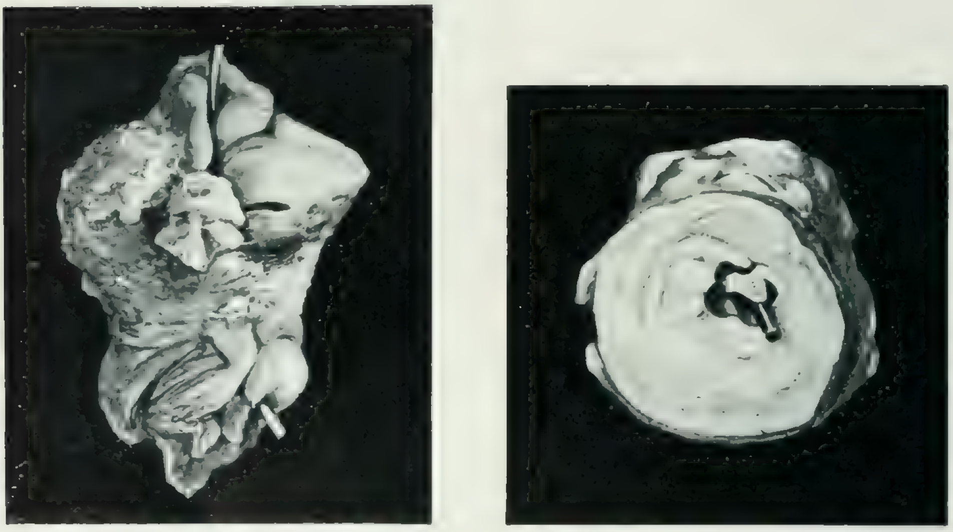

Fig. 4.

Carcinoma of the Prostate.

The specimen from G. B., aged 61. The figure to the left shows a lateral view of the tumour removed; that to the right, a section at right angles to the urethra, which canal is seen to be patent, and has its walls thrown into folds.

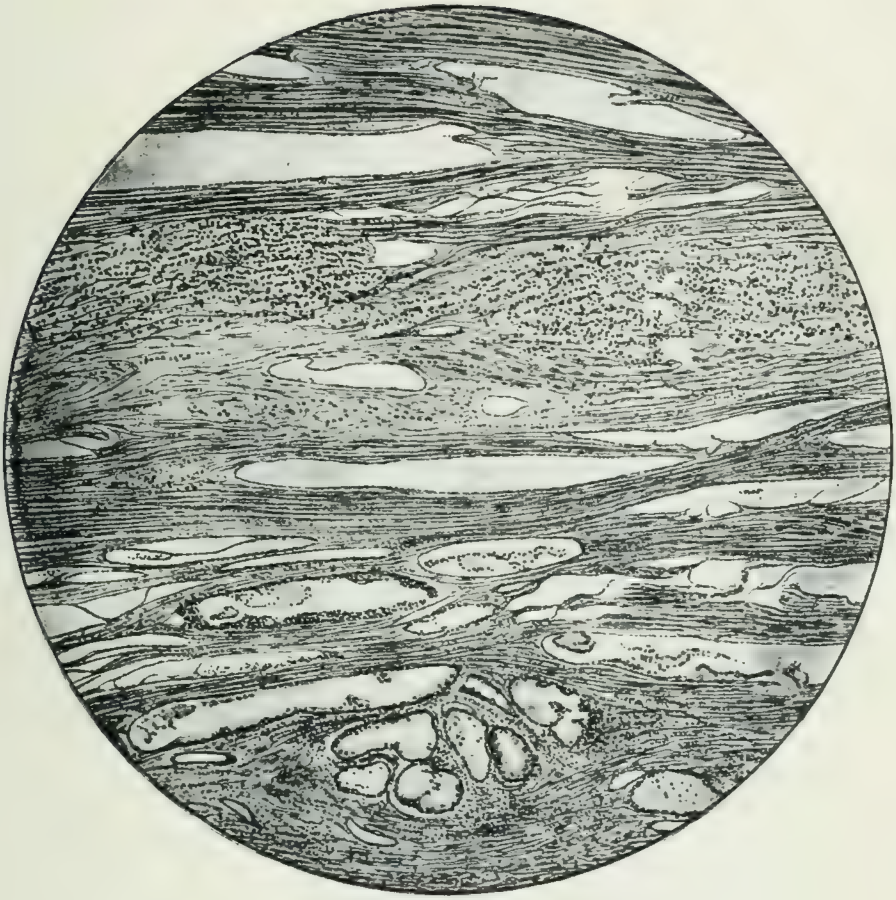

Fig. 5.

This is an example of adeno-carcinoma. At the bottom are somewhat altered alveoli lined with sub-columnar epithelium. Towards the top of the figure, masses of epithelial cells, lying in a delicate stroma, are seen. These cell masses show no resemblance to normal alveoli, and constitute carcinoma. The section was taken from a tumour which, to the naked eye, was a simple adenoma.

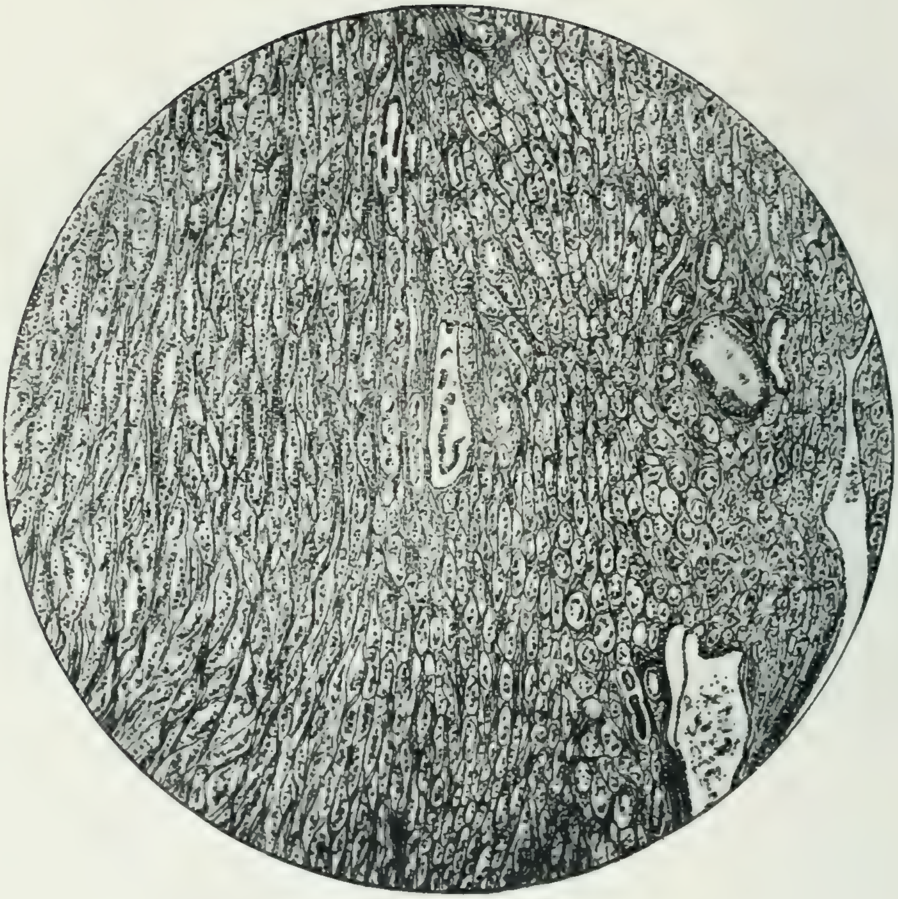

FIG. 6.

A microscopic section showing spheroidal-celled carcinoma of the prostate. The normal structure of the gland is lost. The field is almost entirely made up of small epithelial cell-masses lying in a delicate stroma. A few less altered alveoli are to be seen.

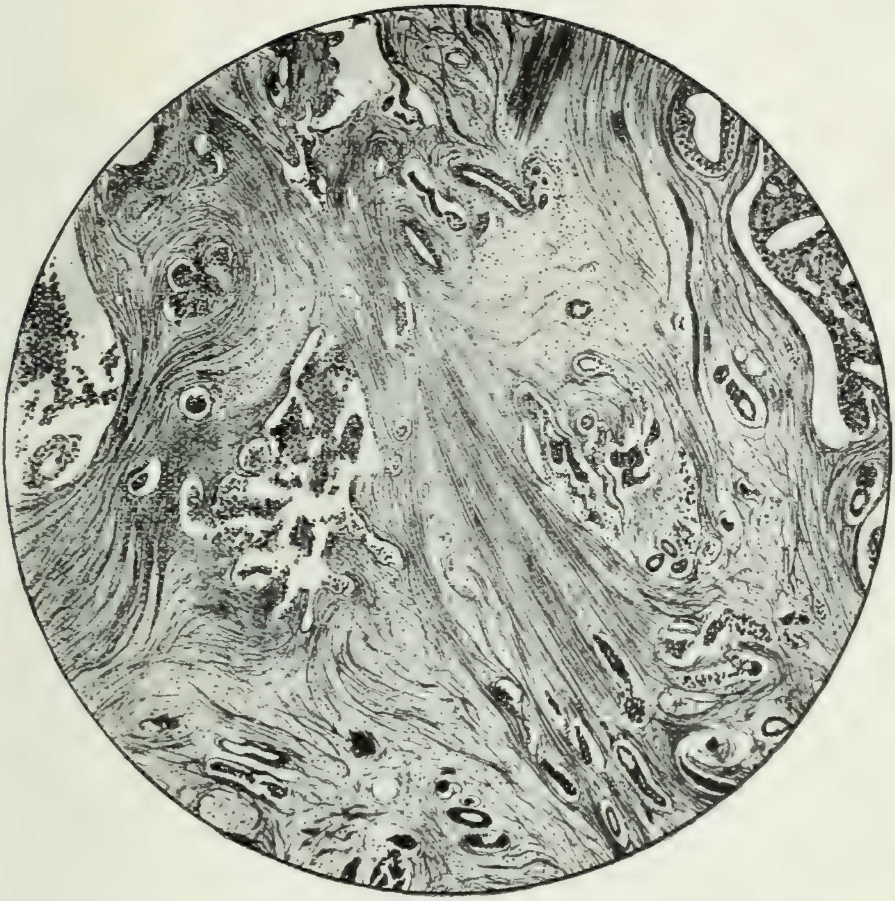

Fig. 7.

A microscopic section showing spheroidal and columnar-celled carcinoma of the prostrate. There is a greater proportion of stroma than in the last figure. Many of the alveoli have a lumen and are lined with a sub-columnar epithelium.

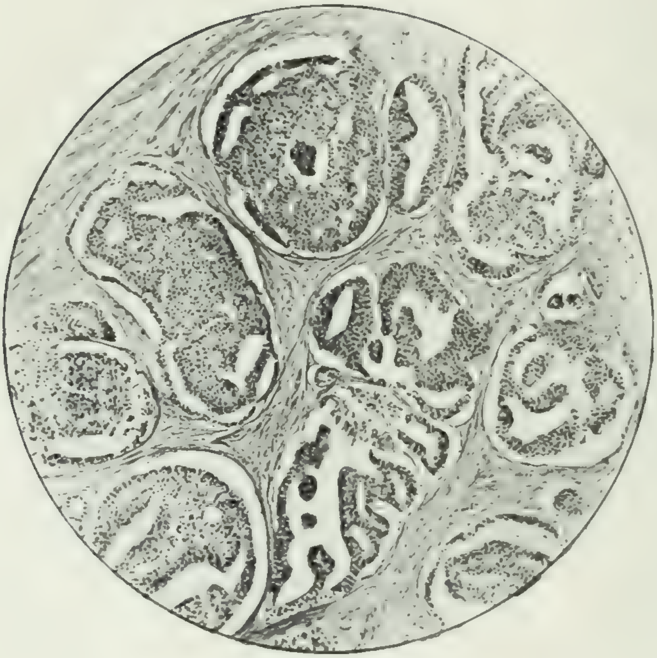

Fig. 8.

Carcinoma Solidum.

Shows the solid columns of cells as well as atypical alveoli. The cellular elements are everywhere in excess of the normal.

Microscopic sections show similar appearances, alveoli normal, alveoli somewhat distorted and compressed with degeneration of the epithelium. Perhaps in the "diffuse" form there is a little more stroma in proportion to the glandular elements.

It would be very difficult, were it possible, to tell from microscopic sections to which division the particular section belonged.

Then, again, if the different varieties of the "diffuse" form are studied, the same appearances are seen in small prostates without symptoms as in those which are large and present symptoms. The appearances referred to are the yellow areas, small and ill-defined at first, but becoming larger and more defined in the larger specimens. Microscopic findings are similar again.

Finally, if the early departure as seen in the diffuse form be compared microscopically with the most advanced adenomatous formation, is there enough difference to warrant an assumption that the two are distinct? I believe not.

THE TIME FOR OPERATION IN CASES OF SIMPLE ENLARGEMENT.

This to me is often a great difficulty. Should operation be undertaken directly catheter life begins, or should delay be advised? I believe I have made up my mind in one class of case.

If a patient is near 70 years, has and has had for some time well-marked symptoms; if the prostate on rectal examination presents a bilobed bulging and is not hard, and if the organ examined bimanually under an anæsthetic is large, then operation is indicated. On the other hand, if the patient is near 60, and has only had symptoms a short time, if the prostate is small both to rectal and bimanual examination, then I am inclined to hold my hand. I might put it in another way, and say the better marked the symptoms, the larger and more resilient the prostate, the more favourable is the operative outlook.

If my assumption that the simple forms of simple prostatic enlargement are stages in the same process, it seems likely that the smaller prostates will be more difficult to deal with than the larger because encapsulation has progressed less far. I am at the same time quite aware that some small prostates lend themselves to easy enucleation.

SUPRAPUBIC AND PERINEAL PROSTATECTOMY.

If the prostate is large and resilient, and especially if any intra-vesical projection can be made out, the suprapubic route is I believe the quickest and best.

I should say that in such a case the operation is finished by the suprapubic route in almost the same time that the tractor is introduced into the bladder in the perineal method.

As regards healing, I cannot say that there is much difference.

The drainage would be better in the perineal, but usually the drainage question is of no great moment if the operation is done in two stages. On the other hand, if the prostate is small, and, may therefore present difficulties and perhaps require piecemeal removal, then the perineal method with a tractor is the best, as the cutting away can be done under the eye.

Again, in those cases in which carcinoma is suspected, but not accurately diagnosed, the perineal method gives the chance of an immediate microscopical examination to be followed by a total prostatectomy if carcinoma is present.

THE CONDITION OF THE BLADDER AND URETHRAL MUCOUS MEMBRANE AFTER PROSTATECTOMY.

If the bladder and vesical mucous membrane can be left intact there can be no doubt that a great gain will result. I may say at once that I have not attempted it, but would be glad to learn under what conditions it should be attempted.

When the tumours are small and the intra-vesical projection is absent I can quite understand that it is feasible whether the perineal or combined method is used.

The difficulty to my mind is the management of the large intra-vesical prostates when the urethra and bladder sphincter are already much stretched.

In those cases, the covering of the growths is a thin spread-out mucous membrane.

I make this statement simply from the study of *post-mortem* specimens.

PROSTATECTOMY IN TWO STAGES.

I should like to obtain the views of the Society on this procedure. Personally I am very much in favour of it. When patients present themselves with well-marked symptoms of prostatic enlargement, but the urine is foul and alkaline, and the patient evidently suffering from septic absorption, it seems to me that it is running a needless risk if we proceed at once to enucleation. In deciding to adopt this procedure I am more inclined to be guided by the general aspect of the patient than by any definite condition of the urine. I have made a point lately of having the urine examined by our pathologist, Dr. Dudgeon, with a view of finding the presence or absence of casts, but I am not from my experience inclined to lay very great stress on their presence. I have also made some trial to colour excretion tests, but here again did not feel any great confidence in them. The presence in the urine of the colon bacillus again requires consideration. If its presence is unaccompanied by fever I do not think that we need fear any untoward circumstances, and at the same time I do not know any method by which one can get rid of the infection. If, on the other hand, bacteria is accompanied with fever I would strongly recommend suprapubic cystotomy and the administration of a coli serum, as the result of this serum in cases of colon infection accompanied with fever is really very remarkable.

PROSTATISM.

This is a term which is not much in favour in this country, but is used in America and on the Continent to indicate the series of symptoms which are identical or very similar to those met with in enlargement of the prostate. When this organ is examined, however, it is found that there is little or no departure from the normal, and that another cause must be sought for the symptoms as they exist. The cases vary very much in severity. Sometimes there is only a little frequency of micturition, in other times this is more severe with pain and urgency, and in the worst class of case there is complete retention.

The commonest age for these symptoms are somewhat before that of enlargement of the prostate. When one enquires what are the causes of the symptoms one is almost at a loss. In a large number of cases cystitis or infection of the bladder, as shown by cultivations, can be excluded. It is true that in a certain number of cases which present these symptoms the coli communi bacillus is found, but this bacillus is known to exist in the bladder without giving rise to any symptoms, provided that fever is absent, and therefore it is doubtful whether it can be named as the causative factor. Many views have been advanced to account for this condition, and the most commonly held I suppose is that there is some chronic inflammation of the prostate. Another view held is that there is the cicatricial contraction at the neck of the bladder, and I was reading in a French journal the other day an article which attributed this train of symptoms to chronic alcoholism. I must confess that so far as I am concerned I can offer no explanation, nor can I tell how these cases are to be treated or how they may be benefited. In a few cases a passage of large sounds seems to be indicated.

CARCINOMA OF THE PROSTATE.

It is becoming every day more evident that carcinoma of the prostate is by no means a rare disease. It certainly occurs to the extent of 10 per cent in those cases of prostatic "enlargement" which are submitted to microscopical examination. Under the microscope one can recognise several varieties of growth.

1. The growth is made up of epithelial cells arranged in lenticular masses with a very small amount of stroma tissue between them. As a rule, there is no lumen in the masses of cells, but occasionally, as one would expect, an alveolus more or less normal is to be seen. This in old time would have been called a medullary growth (Fig. 6).

2. In this case the departure from the normal structure of the gland is not so marked, and in the same microscopic field one may see alveoli somewhat irregular in shape, but possessing lumen and presenting plications of its walls and an epithelium of a subcolumnar type. On the other hand, regular spaces filled with polygonal masses of epithelial cells are also to be seen. The mesoblastic tissue of this variety is well represented, and often runs in great strands or waves between the epithelial cell masses. These masses of tissue would be taken for fibrous tissue if staining by van Giesen's method did not demonstrate that they were largely composed of plain muscular fibre (Fig. 7).

3. Large masses of cells occur in solid columns. Cut in cross section the columns present a more or less rounded or crenate outline (Fig. 8).

4. Here the microscope shows adenomatous formation, but in some parts of the field the alveoli may become so altered as to constitute without any doubt a cancerous tumour (Fig. 5).

There is no sharp line between these varieties. They are often to be met with in the same organ if sufficient number of sections are taken. It cannot be said that there is any relation between the physical signs and the microscopical appearances. On the whole, however, the second variety is rather more common when the prostate is small, and the fourth when the prostate is much enlarged, and the more easily the tissue can be removed from the carcinomatous prostate the more likely is this tissue to conform to the last variety, which I take it is what Continental observers mean by adeno-carcinoma.

Morbid anatomy.—Carcinoma usually starts behind the urethra and above the ejaculatory ducts, that is, in the region which is most commonly affected with adenomata. When examined in the early stage with the naked eye the appearances presented may be either very similar to those seen in adenomatous enlargement, or the cut surface may show a more or less translucent stroma with whitish specks scattered through it, in fact, not unlike what one sees in scirrhus of the breast. There is a good deal of evidence to show that the growth may remain confined for a long time to the gland without producing any marked local symptoms or physical signs which might attract especial attention. When it does transgress the limits of the organ, it does so in an upward direction, either anteriorly when it passes up and invades the trigone and then passes forwards and outwards underneath the bladder mucous membrane to reach the anterior wall of the bladder. Ulceration may take place, but it is very rare to get any real tumour formation in the bladder. On the other hand, the growth may pass up towards the base of the organ and invade the seminal vesicles, the vasa deferentia, and the base of the bladder, which lies between them. The invasion of this region leads to certain physical signs, which will be referred to afterwards. The growth then passes out from this region along the vessels and nerves, gains the side of, and spreads itself out over, the pelvis, and fixes the prostate immovably. Growths are also found in the iliac, pelvic, aortic, and lumbar glands. Secondary growths occur in distal parts of the body, especially in the lungs and pleuræ. Invasion of the bones seems to follow the same order that we meet with in carcinoma of the breast, that is, those bones which lie nearer the original growth are more often involved than those which lie at a distance. One important fact, which must not be lost sight of, namely, is that secondary growths may be found in the lungs or pleuræ while the primary growth is still confined to the prostate (Figs. 2 and 3).

Physical signs.—Rectal examination is one of the first methods we adopt to examine a prostate, and, therefore, I will describe first of all the conditions revealed by such an examination.

First of all, as to size. A carcinomatous prostate is usually small, but in those instances in which carcinoma becomes engrafted on to an adenomatous process the organ may be of fair size. As a rule, there is extreme hardness, the surface often nodular. If there is any bulging of the rectum by the growth, there is no sign that such bulging is caused by two separate growths, as is usually the case in adenomatous enlargement. Young believes that an inability to palpate a sound, introduced into the bladder, with a finger in the rectum is suspicious of this disease. If the growth has invaded the bladder above the prostate it forms a plaque-like mass, which mass is undistinguishable below from the prostate proper. The top of this plaque, lying as it does between the openings of the ureters, may be out of reach of the finger, but if the finger can reach, it finds that this limit is slightly concave downwards, and presents a very definite and abrupt termination, so that the finger can, so to speak, be hooked over the top of it. This upward growth may lead to a false impression, unless the possibility of its occurrence is borne in mind, and in this connection I should like to quote to you the following case:—

J. R. W., æt. 56 years, came to me with a four months' history of a constant desire to defæcate, but the act produced no satisfaction, the rectum still feeling loaded. There was nocturnal micturition. On examining the rectum, the prostate was large, rather firm, smooth, and markedly bulged at the rectum. The top of the prostate could not be reached. It seemed to me that it was very large, considering the duration of his symptoms. The cystoscope showed that there was no intra-vesical projection. The trigone area appeared rather putty. The bladder was opened above the pubes, and it was found that there was no intra-vesical projection. The internal meatus was normal, but the prostate proper was very little, if at all, enlarged, and the whole apparent enlargement as felt per the rectum was due to the infiltration of the base of the bladder by some process. I was doubtful at the time as to whether it was inflammatory or carcinomatous. There was evidently nothing to be done, so the bladder was allowed to close, and the patient went home with his symptoms practically unaltered.

Six months later I saw the patient again. He was then passing flatus and fæcal matter by the urethra. Colotomy was performed, and patient died eight months after I first saw him, or a year after the onset of the first symptoms.

The urethra sometimes offers an obstruction to the passage of a sound. This is not due to flexure of the canal, as this seldom takes place in carcinoma, but to a narrowing of the canal, the walls of which are thrown into folds (Fig. 4).

As a rule, there is no intra-vesical projection in carcinoma, and in this connection a cystoscope will be helpful in diagnosis. I think, also, that a turgid or puffy condition of the trigone should raise suspicion, and, of course, miliary white spots or ulceration will practically clinch the diagnosis.

S. B., aged 66 years, complained of frequency and difficulty of micturition for two years. He passed a catheter at intervals, and lately has been entirely dependent upon it. *Per rectum*, there was unilobular projection in the rectum; bimanually, the prostate was small, hard, but not fixed. A suprapubic cystotomy was performed. There was a slight intra-vesical projection, and the edge of the meatus was rather hard and uneven. Attempt at enucleation produced a small tumour containing about 1 inch of the urethra. In diameter it measured about 1 inch. On examination the tumour was found to consist of the urethra wrapped about with circumferential running strands of tissue. The transverse section of the tumour showed a smooth, rather translucent surface, with little or no indication of gland tissue. The urethral wall was thrown into many folds, and so was star-shaped on cross section. The bladder closed in about three weeks, and spontaneous micturition was re-established. The patient, however, did not gain strength, and sank and died. The section of the tumour showed spheroidal-celled carcinoma. The *post-mortem* showed both the pelvic and iliac glands infected with (microscopic) spheroidal-celled carcinoma.

Clinical symptoms.—The symptoms of carcinoma of the prostate are, I believe, but little different from those met with in ordinary enlargement. There is the usual combination of frequency, difficult micturition, and retention. Hæmaturia is not frequent. Pain is, no doubt, in a certain number of cases, a very marked symptom, and it may be met with in the perineum, in the hypogastrium, in the buttocks, in the lumbar region, or it may take the form of ordinary sciatica. I am not sure whether the pain occurs while the growth is still in the prostate, or whether it only occurs when the growth has invaded other pelvic structures. I have met with one case quite recently in a man, aged 50 years, who gave a history of frequency of micturition of eight months' duration. The frequency never troubled him until two months before he came under observation. When admitted to hospital he suffered from constant pain in the lumbar region, and it was for this reason that he consulted me. On examination, he presented all the signs of prostatic carcinoma, with infiltration of the base of the bladder. I told him that the operative prognosis was exceedingly unfavourable, but he begged to have some attempt made, as life was quite unbearable owing to the ever present pain.

Looking over my own cases and comparing them with literature, it seems to me that carcinoma occurs rather earlier than benign adenomata. Adenomata apparently are most commonly met with between the ages of 65 and 70, or a little later, whereas carcinoma comes under observation in the previous five years of life, that is, between 60 and 64. The duration of symptoms seems to be shorter in carcinoma than in adenomatous enlargements of the organ. In 9 cases I found that the duration of symptoms was fifteen months, while in 47 benign cases the average was three and a half years.

Diagnosis.—In order that disease may be attacked, it is necessary that the diagnosis should be made while the disease is yet confined to the gland. It therefore follows that one of the most characteristic signs, that is, the upward extension of the growth on the base of the bladder, can be of no avail, since its very presence shows that the disease has passed beyond the possibility of treatment.

I had the opportunity the other day of talking this matter over with Dr. Hugh Young, and he informs me that he relies on the following facts for diagnosis:—Stony hardness, evidence of narrowing of the urethra, inability to feel a sound introduced into the prostatic urethra by a finger in the rectum, and absence of intra-vesical growth. The absence of much enlargement and the unilobular bulging of the rectum is suggestive. Puffiness of the trigone is also helpful. In addition to this, if such symptoms occur in a man before 65, who gives a comparatively short history, the diagnosis is rendered more certain.

Hæmaturia should not be expected, and pain, if present, is extremely suggestive, but may only occur in cases which are beyond the reach of surgical help. It must not be forgotten, however, that carcinoma may supervene in a pre-existing adenomatous enlargement, and that in such cases it is extremely doubtful that a suspicion of malignancy would arise.

Provided that a diagnosis of carcinoma can be made sufficiently early to render an operation worth considering, it must be discussed to what extent the patient can be benefited by such an operation. In the first place, it would be useful if we could obtain some idea of the duration of life in cases of carcinoma of the prostate. My cases are too few in number to make any general statement, but it appears probable that a man can certainly live three years after a microscopic diagnosis of carcinoma of the prostate. It would therefore seem that in favourable cases it is worth while attempting some measures if by any chance the pain and distress of the later stages of the disease can be avoided. If we are determined that an operation is indicated, one has to consider what courses are open to one. There are the palliative operations, such as excision of portions of the prostate, which will come away either by enucleation or by piecemeal removal, or the radical operation as suggested by Young. I think there is some evidence to show that even if we take palliative operations and operate through the bladder, and attack the part of the gland behind the urethra, that the symptoms, such as retention and difficulty in micturition, may be relieved and the patient made more comfortable, and I have had a case of this kind, which has now been under observation for two years. The retention has been relieved, and the patient leads a fairly comfortable life. I can give the details of two such cases.

R. S. B., aged 65 years, gave a history of five years' frequency, which had increased in severity until the time when he was first seen. Urine was passed every hour both during the night and during the day. There was occasional incontinence during sleep. Intermittent micturition, great urgency: as a rule, about 2 oz. was passed at a time. Passage of a catheter showed residual urine to the extent of 20 oz. *Per rectum*, the prostate was not enlarged. The surface was smooth, and bulged at rectum very slightly. In December, 1906, suprapubic cystotomy was performed. There was a very slight intra-vesical projection, and the trigone area was studded over with small mustard-seed nodules, bringing to mind miliary tuberculosis of the peritoneum. Bimanually, the prostate was quite small. Attempt at enucleation failed, and I contented myself with removing with punch forceps a portion of the prostate immediately behind the internal meatus. Patient left the home with the wound closed, but it occasionally broke down and discharged a few drops of urine in the ensuing six months. The urinary symptoms were much improved, but no real cure took place.

In October, 1908, I saw the patient again. He was in a very fair condition, but had lost a little in weight. The symptoms had again become aggravated, and he was passing urine very frequently both during the day and night. There was, however, now no distension of the bladder. *Per rectum*, the signs of prostatic carcinoma were well marked. The prostate was very hard, nodular, and there was a plaque extension on to the base of the bladder. It was certainly surprising to me how well the patient was, and how slight were the symptoms considering how advanced the disease evidently now was. I may add there was no pain nor hæmaturia, and his sexual functions were normal.

W. R., aged 62 years, was admitted in November, 1907, with a history of incontinence of about two years' duration. Cystoscope examination showed nothing abnormal, except a slight posterior intra-vesical projection. *Per rectum*, the prostate was hard and slightly nodular: no enlargement. Suprapubic cystotomy was performed. The prostate was quite small, and enucleation only resulted in a ragged tumour, weighing about 10 grammes and containing the urethra, being removed. On section, the tumour showed a translucent surface with white opaque areas: no signs of encapsulation. The areas were like those seen in the early stages of adenoma. Spontaneous micturition re-established in about three weeks, and the patient left with good control and little frequency. September, 1908, he was fairly well, but of late had been advised by his doctor to pass a catheter to relieve the frequency of micturition.

It might be objected that such an operation seems futile, seeing that it can only relieve a small portion of the organ which is diseased, but still apparently it may get over the mechanical obstruction, and so render the patient more comfortable.

If the case seems very favourable, and totally confined to the gland, we might determine on doing Young's perineal "real" total prostatectomy.

Even if it was impossible to establish continuity of the bladder with the urethra, and a suprapubic opening had to be made and an apparatus worn, I am by no means sure that such a course is not justified if it can relieve and do away with the pain, which in the later stages of these cases is so very distressing. Of course, the total prostatectomy must be done by the perineal route, as this is the only possible method.

From the Medallion by *by Ringel d'Illzach, 1884.*

LOUIS PASTEUR.

PASTEUR.[1]

BY JOHN WILSON MATHIE, M.B., C.M.

GENTLEMEN,—In meditating what to make the subject of the presidential address, I thought that a study of the life of one of the great men connected with our profession might be both interesting and stimulating. The one I have chosen to speak about did not technically belong to the medical profession, being a chemist, but much of his work has been so closely connected with the healing art, and has been such a source of elucidation and inspiration to great and small in our ranks, that we feel as if he had been actually one of ourselves. One of our great ones whom he inspired, and who frankly avows the fact, is Lord Lister. To Lister we owe the application of antisepsis: from Pasteur, Lister learned what caused sepsis.

The method I will follow in studying Pasteur's life is, after briefly referring to his younger days, to take up his principal discoveries in chronological order, and then to speak about some of the personal characteristics of the man himself.

Louis Pasteur was born at a little place called Dôle, on the eastern borders of France, on 27th December, 1822. Like so many other men who have left their impress on the world's history, Pasteur began life in very humble circumstances. His father was a tanner, in a small way, as his grandfather and great-grandfather had been before him. His father had been more than that, however, having served his country as a soldier in one of the Napoleonic wars, and did so in such a valiant and outstanding way that he was decorated on the field of battle with the Cross of the Legion of Honour, a reward which his son duly received also, but in very different circumstances.

The conditions in Louis' home were so humble that he once said, long afterwards, " Modest ease did not even reign in our home." Yet his parents made their children's education, and especially that of Louis, a chief end in life, and practically starved in doing so. As a schoolboy he showed at first no special excellence, taking things rather easily;

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[1] Presidential address delivered to the Glasgow Eastern Medical Society, 7th October, 1908.

but afterwards, realising the sacrifice and hard toil that his education was costing his parents, he is said to have then thrown himself into his work with enthusiasm. In that work he was considered "slow, because his mind, even then, worked so carefully: he never affirmed anything of which he was not absolutely sure."

Although rather grave and mature beyond his years, he delighted in boy-play. It was noted, however, that one form of boy-sport that was counted amusing in these days he altogether avoided, viz., bird-trapping. The sight of a wounded bird gave him pain, instead of amusement. Thus, early, we see the kindliness and sensitiveness of his nature, which was a characteristic right through his life.

One remarkable fact connected with his student days may be referred to. When taking his degree as Bachelor in Science, at the age of 20, he was given only "mediocre" marks in chemistry. *This* to the individual who was to take such a high place in that same science!

Even in these days he showed his strong moral fibre; for, when studying in a school in Paris, some of his friends were uneasy as to the temptations of the Latin quarter. He replied, "When one wishes to keep straight, one can do so in this place as well as in any other: it is those who have no strength of will who succumb."

The first discovery that made Pasteur famous in the scientific world was a purely chemical one; but, as it shows the original observation and method of the young chemist, it is worth recording here. No less than six years were spent on working at it, from age 20 to 26. It was in reference to the substance called para-tartaric acid, otherwise called racemic acid. Tartaric acid had been made known to the chemical world in 1770 by the celebrated Scheele, who discovered it in the thick crusty formation called tartar, which is found within wine barrels.

But, by chance, in 1820, another acid, to which the name "para-tartaric" was given, had been obtained by an Alsatian manufacturer whilst preparing the tartaric acid in his factory. But to get more of it he failed, in spite of all attempts. Such great chemists as Gay Lussac and Berzelius came and studied what remained of the now precious acid, thus found by chance, but its constitution was a mystery to them also. A great Berlin chemist and crystallographer, called Mitscherlich, in studying and experimenting with it, made out this singular fact, that although certain of the salts of tartaric acid and the similar salts of para-tartaric acid had *apparently* the same crystalline form, and the same number and arrangement of the atoms, yet a solution of the tartrate rotated the plane of polarised light; the solution of the para-tartrate did not.

This was the problem that young Pasteur now tackled. He began by carefully studying the crystals deposited from the solutions of the salts of the two acids, and then he noticed that the crystals of the tartrates had certain little faces which had escaped the profound observation of Mitscherlich and the others. When he came to examine the crystals of the para-tartrates he thought to find no faces, so as to account for the negative action to polarised light. But to his intense disappointment he found them here also. Closer examination showed, however, that the faces of some of the crystals were inclined to the right and those of others to the left. It then occurred to him to take up these crystals one by one and sort them carefully, putting on one side those which turn to the left and on the other side those which turn to the right. He thought that by observing their respective solutions in the polarising apparatus, the two forms would give two contrary deviations, and then by mixing together an equal number of each kind, the resulting solution would have no action upon the light, the two neutralising each other.

And such proved to be the case. This hitherto incomprehensible para-tartaric acid was now seen to be a combination of right and left-hand tartàric acid. The discovery was one of the first importance in the chemical world, and straightway made a name for the youthful Pasteur.

Now we come to his studies in fermentation, which have shed such light on many questions in medicine and surgery.

He shows himself how he was led on from the chemical and crystalline to the vital and fermentative questions. He said, "If I place one of the salts of para-tartaric acid in the ordinary conditions of fermentation, the dextro-tartaric acid alone ferments, the other remains in the liquor. Why does the dextro alone ferment? Because the ferment of that fermentation feeds more easily on the right than on the left molecules." He became convinced that the result was due to the action of a living organism.

But in order to grasp the magnitude of the revolution which Pasteur was to cause in getting at the real truth of what fermentation in itself really is, we must consider what the ideas of that time about fermentation were. We will thus see the tremendous effort it required on his part to "establish a theory which was to become a doctrine."

The idea of fermentation which then prevailed in and about 1848 was that of Liebig. Liebig's idea has been illustrated shortly thus:—"He viewed the transformation of sugar into alcohol as a purely chemical process, depending, not on the living yeast cells which the microscope had revealed, but on the dead yeast undergoing post-mortem decomposition" (Franklin). Pasteur, on the other hand, recognised therein a phenomenon, the result of life. And he ultimately proved the constant presence of living micro-organisms, not only in yeast, but in all fermenting substances which he examined. He proved the certain and complete prevention of fermentation, putrefaction, and other processes in many substances, however naturally subject to them, by the exclusion of all micro-organisms, or by their destruction, if present. He also showed that each method of fermentation (vinous, lactic, putrefactive, or whatever it may be) is due to a distinct specific micro-organism appropriate to that method, and, by its own vital processes, initiating the changes which lead to the formation of the specific product of the fermentation—the alcohol, vinegar, or whatever else.

But this proving of things took time, and amid tremendous opposition. He was very careful not to say much until he was sure: as he wrote once, "In experimental science, it is always a mistake not to doubt, when facts do not compel you to affirm."

As a result of these discoveries he was drawn into a long discussion on the subject of spontaneous generation. This theory goes back a very long way, but it seemed to have altogether lost ground until the invention of the microscope at the end of the seventeenth century appeared to bring fresh argument and data to its assistance. One put the matter thus: "Where do these infinitely small bodies come from which are seen in rain-water or any infusion of organic matter after exposure to the air? How can they be explained otherwise than through spontaneous generation?" Different men, more or less famous in their day, took the different sides prior to Pasteur's time. When he took up the subject, it resolved itself pretty much into a battle between him and a M. Pouchet, a director of the Natural History Museum of Rouen. To read how Pasteur fought this long and trying contest shows what a splendid fighter he was. This was about the year 1860. Pasteur began by making a microscopic study of atmospheric air. He said, "If germs exist in the atmosphere, could they be arrested on their way?" He tried the plan of drawing air, by an aspirator, through a tube in which he had inserted a plug of cotton-wool. By the microscope, he made himself certain that on the cotton-wool, besides detritus, there were spores and germs. He made different experiments to prove that the most putrescible liquids remain pure indefinitely if placed out of the reach of these atmospheric dusts, but they were immediately altered if a particle of the cotton-wool filter was put in them. Pasteur knew that the cotton-wool itself would be suspected, so he devised a very ingenious and yet simple method which did away with the use of the wool. He took a flask with a long neck, put an infusion of some organic matter into it, then by means of a flame drew the neck of the flask into a point, curving it down, but leaving the extremity open. He then boiled the liquid and left it to cool. No change took place in that liquid, no matter how long kept, although thus in connection with the air. Why? Because when the air with its dust and germs passed into the flask, owing to variations of temperature of the atmosphere, it did so slowly enough to drop these small substances on the neck. These are his own words:—"Everything in air, save its dusts, can easily enter the flask and come in contact with the liquid. Imagine what you choose in the air—electricity, magnetism, ozone, unknown forces even, all can reach the infusion. Only one thing cannot enter easily, and that is dust suspended in air. And the proof of this is, that if I shake the flask violently two or three times, in a few days it contains animal cultures. Why? Because air has come in violently enough to carry dust with it. And therefore, gentlemen, I could point to that liquid and say to you, I have taken my drop of water from the immensity of creation, and I have taken it full of the elements appropriate to the development of inferior beings. And I wait, I watch, I question it, begging it to recommence for me the beautiful spectacle of the first creation. And it is dumb, dumb since these experiments were begun several years ago: it is dumb because I have kept it from the only thing man cannot produce, from the germs which float in the air, from Life—for Life is a germ, and a germ is Life. Never will the doctrine of spontaneous generation recover from the mortal blow of this simple experiment."

It was during the time that he was making his experiments regarding spontaneous generation that he gave voice to words which showed he already saw what his experiments and observations were leading to. He said, "What would be most desirable would be to push these studies far enough to prepare the road for a serious research into the origin of various diseases."

He found that putrescible substances, like blood and urine, remained free from change under similar precautions; likewise wine, in the same way, did not develop its so-called diseases when these micro-organisms were excluded, or destroyed by heat when present.

But from these labours in his beloved laboratory he was called away to work of a different kind. The silkworm industry had become a very important one in France, as well as in some other countries. The silkworm is the larvæ or caterpillar stage of a species of moth. It feeds on the leaves of the mulberry tree, and before passing into the pupa or chrysalis stage its spins its cocoon. It is this cocoon which is used in the making of silk.

About 1865 a mysterious disease began to appear, affecting the insect at all stages of its career, viz., in the egg, worm, chrysalis, and the moth. The disease was called pebrine, and was manifested by little black or brown spots. The disease was causing such ruin that some thousands of proprietors of silkworm gardens begged the Government to study the question of the causes of the protracted epidemic. (This was in 1865.) Pasteur was appointed to the duty, and his appointment gave very little satisfaction in some quarters, some expressing regret that the Government should choose "a mere chemist" for the investigation, instead of some zoologist or silkworm cultivator. Pasteur only said, in his characteristic way, "Have patience." He soon satisfied himself that the spots were due to micro-organisms, that the disease was not only contagious but hereditary, that the disease might be put an end to by the destruction of all diseased eggs, or eggs of diseased moths. He devised the following method, and said that if carried out it would most certainly sweep the disease out of the country. His system was: at the moment when the moths leave their cocoons and mate with each other, the cultivator should separate them and place each female on a little square of linen, where it might lay its eggs. The moth is afterwards pinned up in a corner of the same square of linen, where it gradually dries up. Later on, the withered moth is moistened with a little water, pounded in a mortar, and the paste examined with a microscope. If the least trace of certain little corpuscles appears, the linen is burned, together with the eggs, which would have perpetuated the disease. If no corpuscles are found, the eggs are declared healthy, and allowed to be hatched. Those who practised seeding, according to this rigorous prescription, met with complete success; others, who would not even try it, as certainly failed. Ultimately his method was almost universally followed, and with such benefit to the silkworm industry that the profits more than equalled the huge war fine which France was to be required to pay to Germany.

Then came the war between France snd Germany in 1870, which upset Pasteur altogether. His heart bled for his country in her sorrows and humiliations: one can see from his biography what a patriot he was, what a grand love he had for his beloved France! What also causəd him great grief were the reports about the condition of the wounded soldiers at the front and in hospitals. A surgeon (Sedillot) with the army wrote home: "The horrible mortality amongst the wounded in battle calls for the attention of all the friends of science and humanity. The surgeon's art, hesitating and disconcerted, pursues a doctrine whose rules seem to flee before research. . . . Places where there are wounded are recognisable by the fœtor of suppuration and gangrene." During the siege of Paris, in the Grand Hotel, which had been turned into a temporary hospital, Nélaton, in despair at the sight of the death of almost every patient who had been operated upon, declared "that he who should conquer purulent infection would deserve a golden statue." And yet, since 1865, five years previously, in our Glasgow Royal Infirmary, Lister had inaugurated his new method of antisepticism, grounded on Pasteur's ideas.

Allow me to quote here from the famous paper which Lister published in the *Lancet* of 16th March, 1867. The title of the paper is "On a New Method of treating Compound Fracture, Abscess, &c., with Observations on the Conditions of Suppuration." Near the beginning of the paper he makes reference to Pasteur in these words:—"Turning now to the question how the atmosphere produces decomposition of organic substances, we find that a flood of light has been thrown upon this most important subject by the philosophic researches of M. Pasteur, who has demonstrated by thoroughly convincing evidence that it is not to its oxygen, or to any of its gaseous constituents, that the air owes this property, but to minute particles suspended in it, which are the germs of various low forms of life, long since revealed by the microscope, and regarded as merely accidental concomitants of putrescence, but now shown by Pasteur to be its essential cause, resolving the complex organic compounds into substances of simpler chemical constitution, just as the yeast plant converts sugar into alcohol and carbonic acid."

Pasteur, of course, got to know of Lister's work, and others besides Pasteur, but yet the old way was pursued. It is pointed out that since the beginning of the nineteenth century surgery in France had actually gone back, because in the previous century a kind of antiseptic system had been practised almost unwittingly, through cauterisation and application of boiling liquids of different kinds, and in other ways. In this regard it is interesting to note, in passing, that as far back as 1749, in a medical note-book published in that year, it is advised that wounds should be kept from contact with air, that the wound should not be touched with fingers or instruments, that when uncovering the wound, in order to dress it, one should begin by applying over its whole surface a piece of cloth dipped in hot wine or brandy.

After the war, some surgeons in France began to put the antiseptic method into practice, and astonished the others by the immediate lowering of their mortality-rate. But even then the great bulk of the profession stuck to their old ways and methods, and we find Pasteur again and again endeavouring to enlighten them, saying on one occasion, in reference to their blunders, "I *will* make them see."

It was about this time that Pasteur put his theory about fermentation into the concise formula—"Fermentation is life without air." He found that the seeds of a certain fungus, when scattered over the surface of a solution of sugar in contact with air, formed no alcohol, but only carbonic acid gas: and even if some alcohol was present, to begin with, in the solution, this was broken up into water and carbonic acid. Whereas, if he submerged these seeds of the fungus, he found that formation of alcohol was the result. This fungus, originally an aërobic organism (that is, a being which required air for its life and development) became, after being submerged, an anaërobic organism (a being living without air in the depths of the liquid, and behaving in the manner of a ferment). It was Pasteur himself who had applied these two terms (aërobic and anaërobic) some years previously.

The next work of Pasteur was taken up from purely patriotic motives. He knew that Germany was greatly superior to France in the manufacture of beer. He proceeded to investigate the causes of beer going wrong, *i.e.*, its diseases. He again found micro-organisms to blame, and by excluding them, or destroying them, got pure good beer. He had found that the application of a certain heat to wines preserved them from various changes. The same result was got when applied to beer. The application of this process gave rise to the new word "pasteurised," an adjective which has now a wider application than simply to wine and beer.

Again we find how Pasteur saw, even then, the connection between these studies and the diseases affecting mankind. He wrote, in his classical book on beer, the following: "When we see beer and wine subjected to deep alterations, because they have given refuge to micro-organisms invisibly introduced, and now swarming within them, it is impossible not to be pursued by the thought that similar effects may, *must* take place in animals and in man."

The opportunity now came to him again to help to stem a flood of ruin bearing down many of his fellow-countrymen. The two diseases, anthrax or splenic fever and chicken cholera, were affecting sheep and poultry respectively to the extent of 50 per cent of deaths in the one and up to 90 per cent in the other. They were evidently virulent diseases, *i.e.*, diseases due to different kinds of "virus," derived from different micro-organisms. Others had observed the micro-organisms of these diseases—Pasteur confirmed their observation, found the media which gave the pure culture, and carried out inoculation with such. It was in connection with the experiments regarding the chicken disease that a chance observation was made which led to a great discovery. This is the account of it:—

"As long as the culture flasks of chicken cholera microbe had been sown without interruption, at 24 hours' interval, the virulence had remained the same: but when some hens were inoculated with an old culture, put away and forgotten a few weeks before, they were seen with surprise to become ill and then to recover. These unexpectedly refractory hens were then inoculated with some new culture, but the phenomenon of resistance recurred. What had happened? What could have attenuated the action of the microbe? Researches proved that oxygen was the cause, and by putting between the cultures variable intervals of days—of one, two, or three months—variations of mortality were obtained, eight hens dying out of ten, then five, then only one, and at last, when the culture had had time to get stale, no hens died at all, though the microbe could still be cultivated."

Hens who had never had chicken cholera perished when exposed to the deadly virus; those who had undergone attenuated inoculations, and who afterwards received more than their share of the deadly virus, were affected with the disease in a benign form—a passing indisposition—sometimes even they remained perfectly well. They had acquired immunity.

Artificial attenuation and vaccination by the attenuated virus were announced by Pasteur in 1880. There were special difficulties in applying this method to anthrax, but again he triumphed over them. Thousands and thousands of doses of the new vaccine were used throughout the country, and it is said millions of money were thus saved to France. Well-merited reward came to him in his being presented by the Government with the Grand Cordon of the Legion of Honour.

"Pasteur now knew fame under its rarest and purest form: the loving veneration, the almost worship with which he inspired those who lived near him or worked with him, had become the feeling of a whole nation."

We now come to the last great work of Pasteur's life, the work which brought him prominently before the eyes of the whole world, viz., his method of dealing with hydrophobia and rabies. After much experimentation he began to have the growing conviction that rabies had its seat in the nervous system, and particularly in the medulla oblongata. As long as the virus had not reached the nervous centres it remained latent for weeks or months in some part of the body. This explained the variability in the length of the time of incubation. He tried various methods, and latterly fell upon the plan of exposing after death the medulla of a rabid dog, took a particle of it and inoculated, after trephining, directly into the brain of test animals. In fourteen days they developed rabies and died. But Pasteur could not apply the method he had hitherto used, viz., to isolate and then to cultivate in an artificial medium the microbe of the disease, for he failed to detect the microbe. But he said, "Since this unknown being is a living organism, we must cultivate it: failing an artificial medium, let us try the brain of a living rabbit." As soon as the trephined and inoculated rabbit died, a little of the medulla was inoculated into another: each inoculation was succeeded by another, and the time of incubation became shorter and shorter, until after a hundred uninterrupted inoculations it came to be reduced to seven days, and became fixed there. The next thing he wanted to do was to attenuate the virus, and his method of doing so was as follows. He abstracted a fragment of the medulla from a rabbit which had just died of rabies after an inoculation of the fixed virus. This fragment was suspended by a thread in a sterilised phial, the air in which was kept dry by some pieces of caustic potash lying at the bottom of the vessel, and which was closed by a cotton-wool plug to prevent the entrance of atmospheric dusts. The temperature of the room where this desiccation took place was maintained at 23° C. As the medulla gradually became dry, its virulence decreased until at the end of fourteen days it had become absolutely extinguished. This now inactive medulla was crushed and mixed with water, and injected under the skin of dogs. The next day they were inoculated with medulla which had been desiccating thirteen days, and so on, using inoculations of increased virulence until the medulla was used of a rabbit dead the same day. These dogs might now be bitten by rabid dogs given them as companions for a few minutes, or submitted to the intra-cranial inoculations of the deadly virus: they resisted both.

Pasteur was now anxious that his results should be confirmed by a Commission. This was appointed, and at once set to work. A rabid dog having succumbed, its carcase was brought to a certain laboratory, and a fragment of the medulla was mixed with some sterilised broth. Two dogs, declared by Pasteur to be refractory to rabies, were trephined and a few drops of the liquid injected into their brains. Two other dogs and two rabbits received inoculations at the same time. Pasteur said that the two new dogs and the rabbits would develop rabies within twelve or fifteen days; the two refractory dogs would not. Another dog being reported mad, refractory dogs were allowed to be bitten by it, as also dogs and rabbits not refractory. Other mad dogs turning up, they were treated in the same way, so as to give as much material to judge from as possible. What was the result? In each case Pasteur's predictions of what would happen were correct.

One would have thought that Pasteur felt now quite justified in making trial on the human subject, but of this he was frightened and nervous. He feared that a failure might compromise the future. One doesn't know when he would have felt it allowable to do so, but his hand was forced and a start was made by there being sent to him on 16th July, 1885, a little boy of 9 years of age, very badly bitten by a mad dog. This little chap, a young Alsatian, the first of many thousands of patients to get the treatment, had been terribly bitten two days previously. He was taken to a local doctor, who cauterised the wounds with carbolic acid, but knowing of Pasteur's work in Paris, strongly advised the boy's removal to see him. Pasteur was greatly affected by the sight of the boy's condition, but had great scruples in risking the treatment which had done so well with animals. He had to go and consult some trustworthy and wise scientific friends, and their advice being that the new treatment was most probably the only chance for the boy, he acquiesced, and began the injections. As the days went on and the child was getting stronger and stronger doses, Pasteur became perfectly unstrung. He could not work; he could hardly sleep. As his biographer says: "Vainly his experimental genius assured him that the virus of that most terrible of diseases was about to be vanquished; that humanity was about to be delivered from this dread horror. His human tenderness was stronger than all; his accustomed ready sympathy for the sufferings and anxieties of others was for the time being centred in 'the dear lad.'"

The treatment lasted ten days. The virulence of the medulla used was tested by trephinings on rabbits and proved to be gradually stronger. The result was perfectly satisfactory. Little Joseph Meister got better of his wounds and remained in best of health.

Such a result soon spread, other patients arrived, until there was a stream of them from all parts. On 1st March of the following year he was able to affirm before the Academy that the new method had given proof of its merit, for out of 350 persons treated, only 1 death had taken place, and that was in the case of a little patient who arrived too late, viz., thirty-seven days after being bitten.

This was the last great work of Pasteur. He was now in his 64th year, with nine years of life still before him. These remaining years were full of work and interest. Two events stand out—the one, the opening of the Pasteur Institute (a great memorial to a great man); the other, the enthusiastic celebration of his 70th birthday (a national and international recognition). He had lived a strenuous life, and the effects of such were now showing themselves. His work was being deputed to assistants, and they were many. But he took the keenest interest in their work, and rejoiced in their success and discoveries. Roux, who was doing such good work in connection with the serum treatment of diphtheria, was one of these. He and the others were not satisfied until they had the advice and the approbation of their old master.

In November, 1894, he had a uræmic attack, which looked liked proving fatal, but gradually he rallied from this. In body, however, he became steadily weaker; in mind, he remained active and clear. He died on 28th September, 1895.

And now, as regards some personal aspects of Pasteur's life. His work and discoveries were great, but there is much to admire in the man himself and in his relationships to others. I think this account of him would be incomplete if I did not in some measure refer to these.

As a teacher, his methods and ideas were so fresh and utterly unconventional, his lectures so lucid and thoroughly prepared—trying never to state what he was not able to prove—that large numbers of students were attracted. Of course, these new ways of his did not appeal to those of the older school of thought, and they ran down both the man himself and his work. He was continually appealing and seeking to inspire young men. We have a typical example of this in what he said to the students of Edinburgh, when present at the tercentenary of the University in 1884. The students had begged to be allowed to entertain some of the great men present, Pasteur among the number. Some of his words to them were as follows:—"The common soul (if I may so speak) of an assembly of young men is wholly formed of the most generous feelings, being yet illumined with the divine spark which is in every man as he enters the world." "Whatever career you embrace, look up to an exalted goal: worship great men and great things." "Great things! You have indeed seen them. Will not this century remain one of Scotland's glorious memories? As to great men, in no country is their memory better honoured than in yours. You, especially, medical students: be you inspired by the experimental method. To its principles Scotland owes such men as Brewster, Thomson, and Lister."

As a teacher and lecturer, he had a very modest opinion of himself. We see this in what he said regarding two important lectures he had delivered. "At these heights all sense of personality disappears, and there remains that sense of a dignity which is ever inspired by true love of science."

Take now his relationships to his adversaries. He had many of them, and some of them very bitter. He had so departed from the recognised paths, and had dared to question and doubt the trusted and revered authorities, that he was counted a very heretic and denounced accordingly. His eagerness during the conflict was only equalled by his forgetfulness after it was over. He answered some one who, years later, reminded him of that past, so full of attacks and praises, "A man of science should think of what will be said of him in the following century, not of the insults or the compliments of one day." He was "inflexible when he held proofs, full of scruples and reserve when seeking these proofs, and accepting no personal praise if scientific truth was not recognised and honoured before everything else."

"He did not understand envy, ill-will, or jealousy, and was more than astonished—indeed, amazed—when he came across such feelings."

In his relationship to his country, Pasteur was a true patriot if ever there was one. His beloved France and her welfare was ever on his mind and heart. As a young man of 26, at the time of the Revolution in 1848, Pasteur saw one day in the streets a wooden erection decorated with the words, in French, "Altar of the Fatherland," this being one way of getting money for the struggle. Pasteur went home to his lodgings, emptied the drawer with all his savings, and returned to deposit it on the altar.

At the close of the war in 1870, the country being still very disturbed, he was invited by an Italian Professor of Chemistry to take charge of a laboratory and the direction of a silkworm establishment, but he refused, saying, "I should feel that I deserve a deserter's penalty if I sought, away from my country in distress, a material situation better than it can offer me."

Take his attitude to money-making. It is related that once in the course of an interview with the Emperor and Empress, they manifested some surprise that Pasteur should not endeavour to turn his discoveries and their applications to a source of legitimate profit. He replied, "In France, scientists would consider that they lowered themselves by doing so." As his biographer says, "He was convinced that a man of pure science would complicate his life, the order of his thoughts, and risk paralysing his inventive faculties, if he were to make money by his discoveries."

There is one relationship in the life of Pasteur that must be considered if we are to get anything like a true picture of the man. I mean his relationship to religion. That he was a truly religious man is repeatedly brought to one's notice in reading the account of his life. His religion was not obtrusive, but it was very real. In the course of a speech, on one occasion, he said, "There are two men in each one of us: the scientist, he who starts with a clear field and desires to rise to the knowledge of nature through observation, experimentation, and reasoning; and the man of sentiment, the man of belief, the man who mourns his dead children and who cannot, alas! prove that he will see them again, but who believes that he will, and lives in that hope—the man who will not die like a vibrio, but who feels that the force which is within him cannot die. The two domains are distinct, and woe to him who tries to let them trespass on each other in the so imperfect state of human knowledge."

It is said of him "he soared without an effort into the domain of spiritual things. Absolute faith in God and in eternity, and a conviction that the power for good given to us in this world will be continued beyond it, were feelings which pervaded his whole life. The virtues of the Gospel had ever been present to him. Full of respect for the form of religion which had been that of his forefathers, he came to it simply and naturally for spiritual help in these last weeks of his life."

Thus we see Pasteur, a good man as well as a great; a man of simple faith, while having such profound knowledge of many things. Well might his country, and much more than his country, mourn when he passed away. It was the passing of one who had done a grand life's work; having done it earnestly, unselfishly, and humbly.

SOME CONSIDERATIONS ON THE PATHOLOGY OF EXTRA-UTERINE PREGNANCY, WITH A NOTE ON TREATMENT.[1]

By S. J. M. CAMERON, M.B., Ch.B.,
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One makes no apology in bringing before you a subject which probably more frequently than any other has been under consideration by this Society. It is a subject which possesses innumerable possibilities for discussion from a pathological standpoint, and this—combined with the difficulty met with so often in its diagnosis, and the importance of its recognition in the patient's interest—will render it always worthy of careful thought by all abdominal surgeons. We know that it may occur in the ovary, but specimens of this condition occur so infrequently that a true pathological impression of its peculiarities has been derived from the examination of examples of tubal pregnancy, and in this way its similarities to uterine pregnancy have been discovered. Curious as the frequent occurrence of a period of antecedent sterility may seem, yet from the frequent occurrence of specimens in otherwise healthy tubes, few at the present day will adhere to the theory of salpingitic attacks with consequent denudation of the ciliated epithelium as being the sole factor in its production. It occurs in women perhaps at their first conception, or it may develop in the tube of the mother of a large family, but not uncommonly, even in these latter cases, the patients have a considerable term of infertility before the ectopic gestation results. From the examination of specimens and from operative experience one attaches but little importance to the view that peritubal adhesions with resulting diminution in the tubal canal causes obstruction to the ovum, so that during its development it is retained in the canal by one of those barriers. It seems to me that the presence of peritubal adhesions is usually a secondary affair, and they indicate, in the vast majority of instances, an inflammation which is dependent for its production on the presence of the gravid tube.

Webster has theorised on this subject, and has suggested that the occurrence of ectopic pregnancy may depend on reversion to a lower type of tube. It is known that in some lower mammals conception and development is possible in a greater portion of the oviduct than is the case in the human uterus. This seems speculative, and it is improbable that it is general. How can this view explain cases in which women who have borne many children become the subjects of repeated ectopic pregnancy? Do the supporters of this theory consider that such a reversion may be only temporary. There is a fair degree of probability that many cases occur from the lodgment of the ovum in a tubal offshoot. Sometimes during the microscopical examination of Fallopian tubes one of these blind canals may be found penetrating the tubal fibro-muscular tissue, and it is reasonable to suppose that an ovum, during its passage along the tube, may enter such an opening, and remain at its extremity, incapable of further progress. If an ovum in such a position become fertilised, an extra-uterine pregnancy will result.

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[1] Read at a meeting of the Glasgow Obstetrical and Gynæcological Society held on 22nd April, 1908.

Apart altogether from these congenital Müllerian offshoots, similar recesses may be formed by salpingitic lesions in the tubes, and such formations are liable to include the ovum during migration. At present we do not know definitely if fertilisation occurs normally in the Fallopian tube, but if so, I would merely regard the occurrence of ectopic gestation as the result of abnormal and premature activity on the part of the syncytium. When fertilisation has taken place the ovum begins to embed itself in a similar manner to a uterine gestation, but here there is no richly-cytogenic tissue underlying the epithelium, and consequently the ovum immediately comes into close contact with the fibro-muscular tissue of the tubal wall. Consequently no great amount of decidual formation can take place, and development cannot possibly advance far, owing to the peculiar anatomical surroundings of the ovum, without producing certain definite disturbances. The presence of decidual cells is in many instances unmistakable, but as a rule they are not numerous. I show you here, however, a micro-photograph of three plicæ in the non-gravid tube in a case of ectopic pregnancy, and no difficulty is experienced in recognising large numbers of decidual cells in their centres. Decidual formation in the non-gravid tube is uncommon. The ovum having burrowed into the tube wall, its syncytium will be surrounded by a few scattered decidual cells, and around this, again, the fibro-muscular elements of the tubal wall are arranged. Frequently, at points where the syncytium comes into contact with these elements, degenerative changes can be detected in the tissues.

In the early stages of the pregnancy the Fallopian tube is enlarged and congested, but as gestation progresses its wall becomes attenuated. An increase in the size of the blood-vessels is noted, and thus, when their walls are perforated by the invasion of the syncytial cells, copious hæmorrhage takes place, and a mole is often formed from resulting invasion of the fœtal membranes by this outpouring of blood.

Frequently the tension produced by the hæmorrhage on the tube may be sufficient to produce rupture. In many instances the rupture is produced by the phagocytic action of the villi, and I have seen the abdominal cavity full of fresh blood, owing to the perforation of the wall of the tube by a small group of villi. A superficial artery had been opened up at the time of perforation, and it poured its contents directly into the abdominal cavity. Tubal rupture had been in no way aided by intra-tubal tension. A mole may remain in the tube for an indefinite time, but the fimbriated extremity sometimes dilates, and the whole products of conception may be discharged into the peritoneal cavity. When the expulsion of the products of conception is incomplete, repeated hæmorrhage takes place, as in the case of incomplete uterine abortion, the blood trickling through the fimbriated extremity into the pouch of Douglas. If a careful examination be made of the interior of the tube in such cases, a small polypoid mass may be seen in a few instances. This structure corresponds exactly to the ordinary uterine placental polyp. With each hæmorrhage an attack of pelvic peritonitis occurs, so that the omentum and intestines are found adhering to the uterus, bladder, broad ligament, and sides of the pelvis in their attempts to limit the tumour to the pouch of Douglas. When a pelvic hæmatocele becomes infected, pus and blood are found at the time of operation, lodged among adhesions which are frequently dense in structure.

Three weeks ago I saw a patient with a pelvic hæmatocele due to tubal abortion. Her temperature ranged between 103° and 105·6°, and such a degree of peritoneal infection was present that operative procedure was insufficient to check its progress.

This is, fortunately, a very rare condition to meet with in cases of ectopic gestation. In some instances the pelvic hæmatocele will be found to possess a distinct capsule, and on closer examination the fimbriated extremity of the

Fallopian tube will be found projecting into the sac, which is filled with blood-clot deposited layer upon layer. The wall of the sac has a dirty yellow colour, and this contrasts strongly with the bright shining appearance of the peritoneum. On microscopic examination the wall will be found to consist of fibrin and fibrous tissue. This condition is one of peritubal hæmatocele, and it will be noted that the fimbriated ending of the tube is completely surrounded, so that no communication exists between the tubal lumen and the peritoneal cavity.

Handley has drawn attention to another variety of hæmatocele in which the encysted hæmatocele does not include any part of the tubal wall. I show you a section of the specimen from which he gave his description of the condition, and here you will note that the sac merely lies in close contact with the tube at the point of rupture. This condition is known as paratubal hæmatocele, and is very rare. I do not intend to consider the study of rupture into the broad ligament, or the fate of the child and the changes resulting in it, as these are well known.

Certain changes constantly take place in the uterus when pregnancy supervenes in the tube. The uterus undergoes an appreciable increase in size, varying in degree in different cases. It is more vascular than in its normal condition, and it contains a cast of the uterus, which is seldom found complete, being as a rule expelled in parts. The only complete cast which I possess was obtained from a case of intra-peritoneal rupture between the fifth and sixth months. Externally the cast is rough, and on its inner surface the openings of small glands are seen. At its base (corresponding to the fundus uteri) two openings are present, which indicate the uterine orifices of the Fallopian tubes. A single large opening at its apex represents the portion in relation to the internal os. On microscopical examination it is found to be composed purely of decidual cells. Although the cast generally is shed at the time of rupture, yet this is by no means constant. I have known it remain within the uterus when rupture has take place between the layers of the broad ligament, and when intra-peritoneal rupture took place the cast was expelled. It may remain within the uterine cavity until full time, when it escapes at the onset of the labour-like pains.

I take this opportunity of directing your attention to an endometritis which frequently results in cases of extra-uterine pregnancy. This endometritis is directly due to infection of the remnants of the decidual cast in the uterus. In one instance the discharge was very foul, and it was only when curettage had been performed for the removal of the decidual tissue that it ceased. Generally the cervix is softened, but it is of interest to note that Pinard found this softening to be maintained only during the time that the pregnancy is advancing. Among the more interesting specimens which I have obtained is one of two fœtuses in a single tube. I have also removed a specimen in which bilateral ovarian tumours were present, and an ectopic pregnancy was present in one of the tubes. In another case the patient had one of her tubes removed for ectopic pregnancy, and she returned within a year for removal of the remaining tube, owing to conception having occurred in it. When Resident Medical Officer at the Chelsea Hospital for Women I inquired into the histories of sixty-one successive cases of ectopic pregnancy. Without entering at present into the various pathological complications which were present, I found that the ages of the patients ranged from 22 to 44 years, the average age being 32 years 1 month. It occurred twenty-seven times in the left tube and twenty-seven times in the right, and in seven cases the affected tube was not determined. In one case the patient had been delivered of a child five months before and in another case there was a period of fourteen years' sterility before the extra-uterine pregnancy occurred.

There is just one short note I would like to make on treatment. Very considerable difficulty is met with in many cases of pelvic hæmatocele arising from ectopic pregnancy in coming to a diagnosis between it and pyosalpinx. I have seen several cases in which the patient has had a history of two months' amenorrhœa, followed by acute abdominal pain, bleeding, and sickness. Bimanual examination revealed the presence of a swelling with the exact characteristics ascribed to a case of ruptured extra-uterine pregnancy, and yet when the abdomen was opened a large pyosalpinx was found. I believe that most of us will admit that when a pyosalpinx has been in existence for some time there is a tendency for the pus to become sterile. One has noticed cases in which large tubo-ovarian abscesses have ruptured into the peritoneal cavity during operation and, nevertheless, the patients have made perfectly uninterrupted recoveries, owing to the fact that no virulent organisms were present in the pus. On the other hand, each of us can recollect cases in which generalised peritonitis has taken place owing to the presence of gonococci and streptococci in the purulent material. I would therefore strongly advise that in cases where the diagnosis is by no means clear (and one knows by experience that the history of a short period of amenorrhœa may be altogether absent from a case of extra-uterine pregnancy) the existing condition should be determined by the vaginal route before radical operation is performed through the abdomen. This can very easily be done, especially in multiparæ, by means of an incision through the posterior vaginal wall. The contents of the pouch of Douglas can then be readily determined. If pus be obtained, the organisms contained therein may then be detected, and the operator will in this way be guided as to future operative procedure. There is a possibility that the condition present might be found by means of a large-sized aspirating needle, but the opening of the pouch of Douglas by incision in the way indicated can be so easily and quickly done that I can recommend it with every confidence.

Obituary.

ALEXANDER ROBERTSON, M.D., F.F.P.S.G.

On 16th December, 1908, after a brief illness, Dr. Alexander Robertson died at his residence in Woodside Crescent. Although not of robust habit, Dr. Robertson enjoyed good health, and few of those who were accustomed to see him following his professional duties would have imagined that he was in his seventy-fifth year. He had, it is true, been failing somewhat of late, but he was able to attend to his work till nine days before his death, when he was seized with symptoms of heart failure. Rallying from this he seemed to improve, and continued to do so for some days. Serious symptoms, however, again made their appearance, and in the course of a day or two the end came somewhat suddenly. By his death the profession in Glasgow has lost not only one of its oldest members, but one who in his long lifetime had accomplished a vast amount of work.

Born at Rutherglen, Dr. Robertson studied medicine in Glasgow, where he graduated in 1855, M.D. "with honours." He became a Fellow of the Faculty of Physicians and Surgeons in 1870, and subsequently held the office of Visitor of that body. He also at different times occupied high positions in the Pathological and Clinical and the Medico-Chirurgical Societies.

At an early stage of his career he devoted special attention to nervous diseases and insanity, and in this department of medicine he soon became recognised as an authority. For many years he held the post of Superintendent of the City Parochial Hospital and Asylum, and during his tenure of office there his enthusiasm for work was transmitted to not a few of his assistants. Of these we may mention the late Dr. J. B. Russell and Sir William Macewen. After retiring from the Parochial Hospital, he was in 1887 appointed one of the Physicians to the Royal Infirmary, and he held this appointment, along with that of Professor of Practice of Medicine in St. Mungo's College, till about nine years ago.

He made many contributions to medical literature, and, as was to have been expected, his writings dealt chiefly with diseases of the nervous system. In the early days of the subject he published communications on cerebral localisation. His later writings were concerned with insanity and its various manifestations.

While stern in the defence of the right, he was of a kindly and placid disposition. He never seemed to hurry, but he succeeded in accomplishing his work, and he was an enthusiastic attender at international congresses.

He was predeceased by his wife some years ago, and he is survived by a married daughter, and by two sons, both of whom are members of their father's profession.

CURRENT TOPICS.

APPOINTMENTS.—Mr. William Archibald, M.D. Glasg., D.P.H. Cantab., Assistant to the Medical Officer of Health for Glasgow, has been appointed Medical Officer of Health for the Borough of Luton, Bedfordshire. Mr. John L. Stewart, M,A., M.B., D.H.P.Camb., has been appointed Medical Inspector of Schools for the Northern District of Lancashire.

INSTRUCTION IN THE ADMINISTRATION OF ANÆSTHETICS.—Of the many duties which lie to the hand of every qualified medical practitioner there are three which even the youngest member of the profession may at any time be called upon to perform. These are the passing of a catheter, tracheotomy, and the administration of an anæsthetic. The successful performance of any one of these is of vital importance to the patient: but we wish to confine ourselves for the present to the last, in view of the attention which has recently been drawn to it. As the profession are doubtless aware, the Privy Council communicated on this subject in July and August of last year with the General Medical Council. The communication had reference to a Memorandum and proposed Bill, the latter to be known as "The General Anæsthetics Act, 1908." The first clause of the proposed Bill enumerates as a principle that a general anæsthetic be not administered by "any person other than a legally qualified medical practitioner registered under the Medical Acts," unless any such person acts "under the immediate direction and supervision of a legally qualified medical practitioner," or in a case of vital emergency. This principle is one which will commend itself to all members of the profession; but it is otherwise with Clause 2. This clause reads as follows:—"All examining bodies recognized by the General Council of Medical Education and Registration of the United Kingdom shall require that all candidates before presenting themselves for their final examinations shall have received thorough theoretical and practical instruction in anæsthetics, and shall have personally administered anæsthetics under the supervision and to the complete satisfaction of their respective teachers." The General Medical Council not being in session when the communications from the Privy Council were received, the President acknowledged them in a letter in which he pointed out that the proposal contained in Clause 2 would override the function of the Council, and that the existing machinery—"recommendation" of the Council, aided by the pressure of "inspection," and, if necessary, "report to the Privy Council"—was likely to secure that all licensing bodies shall see to the efficient instruction of their candidates in anæsthetics. Further, he criticised the clause as providing no machinery for ascertaining that the examining bodies fulfil the proposed law, nor any penalty for their breach of it.

Now, the Council in May, 1907, issued a recommendation to licensing bodies that the latter should require students to produce evidence of their having received practical instruction in the administration of anæsthetics. As a result of discussion on the proposed Bill, the Council resolved to inform the Lord President of the Privy Council of its approval of the principle of the first clause, and of its inability to support the provisions of the second clause, to which objection was taken in the President's letter.

It was also resolved that inquiry should be made of the licensing bodies how far they had given effect to the above-mentioned "recommendation" of the Council.

No one will deny the importance of practical instruction in the administration of anæsthetics. To carry out such instruction it will be necessary to have attached to each clinique an anæsthetist who will, in the first place, give instruction by lectures on the properties and methods of administration of the various anæsthetics in everyday use. This preliminary instruction will require to be followed by practical instruction in the art of administering the anæsthetics. Only after he has shown himself proficient in administration should the student receive a certificate. The recommendation of the Council clearly makes for practical training, an object which is not always apparently kept in view by teachers. Lectures have their place in the education of the medical student, and their total abolition is unlikely. Preliminary systematic instruction is necessary to enable the student to obtain the greatest benefit from practical work; but lectures can never be a substitute for practical training, and when it comes to a struggle between them the former must be curtailed.

CANCER AND UNQUALIFIED PRACTICE.—The subject of unqualified practice is of perennial interest. Such practice bears a close resemblance to cancer, both as regards its baleful effects and the difficult problem of its cure, and it is curious to observe how the subjects of cancer have a way of drifting into the hands of quacks. In a recent number of the *British Medical Journal* (5th December, 1908) Mr. Lynn Thomas publishes a note on a case of mammary cancer which had undergone "cure" by the "Cardigan Cancer-Curers." The so-called cure consisted in using applications containing zinc chloride, oil of turpentine, and barium sulphate. Such treatment needs no comment, and we are not surprised to learn that Mr. Thomas found the breast "more or less infiltrated with cancer," and bound down to the chest wall.

Such an exposure is of doubtful efficiency. "Populus vult decipi" is as true to-day as when first uttered, and not only does this fact encourage quackery, but it stands in the way of legislation. The General Medical Council is about to send to the Privy Council a request for a Royal Commission "to inquire into the evil effects produced by the unrestricted practice of medicine and surgery by unqualified persons," but there is too good reason to fear that there is truth in Dr. Norman Moore's statement that it will be most difficult to convince the public that unqualified practice should be suppressed.

HOSPITAL FINANCES.—At the annual meeting of the qualified contributors to the Victoria Infirmary, held on 3rd ult., the financial statement which was submitted showed that to meet the ordinary expenditure for the past year it had been necessary not only to make use of the extraordinary income (so far as available), but also to draw on the capital account to the amount of £886. The chairman of the meeting—Dean of Guild M. Pearce Campbell—in his remarks took an optimistic view of the situation. In regard to the finances of the three principal hospitals in Glasgow, he did not think there was any very serious ground for anxiety or disappointment or discouragement as to their not being able to meet their ordinary expenditure by their ordinary income. It had come to this, that they could perfectly well rely on a safe average of legacies and donations. He was not at all sure that it was not sound enough finance that some proportion —he did not say the whole, as in their case—of that extraordinary income should be used to meet their ordinary expenditure. Their report showed that something like 30 per cent more subscriptions would be required if they were to meet their ordinary expenditure by their ordinary income. The three principal infirmaries of Glasgow were over £30,000 short in their ordinary revenue this year, but after all it seemed to him that, taking it as a whole, the finances of these institutions were bound to come out on the right side between legacies and donations.

GLASGOW DISTRICT ASYLUM, WOODILEE: ANNUAL REPORT.—Dr. Hamilton Marr, in his report to the Committee, gives general statistical information, and then goes on to consider the causation of insanity. In 26 per cent of the admissions insanity was directly due to alcoholic excess, but Dr. Marr admits that the increased number of alcoholic cases is large and anomalous in view of the prevailing bad trade. Later on, he refers to the confusion of the right order of things, in that it is apparently an insult to offer bread instead of drink to an unemployed and hungry man. May it not be that mental instability makes the man prefer drink and even take it to excess? Dr. Marr, though possibly on insufficient grounds, brushes aside the view of insanity being caused in the majority of alcoholic cases by an inherent instability of the nervous system. We are entirely at one with him in his views as to the prevention, cure, and adequate treatment of the alcoholic habit, and we would commend to all his remarks in this section of the report. The relationship of syphilis to general paralysis is noted; also that a microbic incidence in the latter disease has not been confirmed. Towards the conclusion of the report Dr. Marr draws the attention of the Committee to the advisability of joining in the Pathological Laboratory Scheme of the Scottish Conjoint Asylums.

The Reports of H.M. Commissioners in Lunacy are satisfactory, and pay tribute to the admirable organisation of the Asylum.

Altogether, the report is a good one and full of interest.

The Medical Inspection of School Children: Results under Govan Board.—Govan School Board has issued a digest of reports of medical officers on the results of the medical inspection of children in the schools of the Board during the year ended June last. The statistics are classified so as to fall under the following main divisions:—(1) Showing general average of heights and weights for all the schools, boys and girls separately, under ages from 5 to 10 years. (2) For the purpose of showing the effect of environment (parental care, home life, and surroundings) on the children, the schools have been arranged in three classes—I, better; II, medium; III, lower. (3) A standard of comparison for height and weight has been adopted, as given in Dr. Leslie Mackenzie's book on "The Health of the School Child."

As regards height and weight, the results of the examinations are summarised as follows:—(1) The general averages of the boys and of the girls are below standard, with the exception that girls at 5 years are a fraction of an inch taller. Both in weights and heights an enormous drop occurs in ages from 9 to 10 years, and this drop is greater in the boys than in the girls. (2) The averages of the schools as classified show that Class I, both for height and weight, is as good as Mackenzie's standard, or better; at 10 years, however, there is a great disparity, especially in weight. Class II is always below Class I in weight and height, and Class III markedly below both. The drop below standard of Class III (boys) is remarkable both in height and weight. In fact, boys of Class III, at 10 years, are about ½ lb. lighter than boys a year younger in the same division. But it is noteworthy that at the age of 10 years, both in height and weight, all the classes, just as well as the general average, are below standard both in height and weight, but more especially in weight.

In regard to vision, the report states that all the medical officers are agreed on the importance of early detection of cases of defective vision. The returns show percentages below normal for the various schools, varying from 6·5 to 77·8, and it is added that it is evident that there has been lack of uniformity in the method of examination.

In regard to the care of their children's teeth, all the examiners agree that parents seem strangely unconcerned.

All the examiners condemn the verminous condition of many of the pupils. In the manner of dealing with verminous children more drastic measures are necessary. In numerous instances the sanitary authorities were notified, and good resulted from the pressure exercised by them.

As a result of the year's working several excellent suggestions have emanated from the examiners; amongst others, the single-desk system. Another advises great care in watching for signs of "nerve strain," and as a complement of this another examiner lays stress on the hours of sleep and play required by growing children of school age. Many other points will suggest themselves, but enough has been written to show that systematic medical inspection of school children will result in nothing but good to the nation.

EXAMINATION FOR THE DIPLOMA IN PUBLIC HEALTH OF CAMBRIDGE UNIVERSITY.—Five Glasgow candidates are mentioned in the pass list at the recent examination. Passed Part 1—Louis M'Lachlan, M.B., C.M., Glasgow, from Anderson's College. Part 2—Joseph Glaister, M.B., Ch.B., Glasgow, from Glasgow University; and Daniel Stewart, M.B., Ch.B., Cambuslang, from St. Mungo's College. Parts 1 and 2—Maud M'Vail, M.B., Ch.B., Glasgow, from Glasgow University and University College, London; John L. Stewart, M.A., M.B., Ch.B., Lennoxtown, from Glasgow University and St. Mungo's College.

THE MEDICAL SERVICES.—At the recent examination for the Royal Navy Medical Service Joseph Glaister, M.B., Ch.B. Glasg., D.P.H. Camb., obtained sixth place.

MEETINGS OF SOCIETIES.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.

SESSION 1908-1909.

MEETING III.—6TH NOVEMBER, 1908.

The Vice-President, DR. T. K. MONRO, *in the Chair.*

I.—CASE OF BILATERAL PARALYSIS OF THE SUPRA-SCAPULAR NERVE.

BY DR. ARCH. G. HAY.

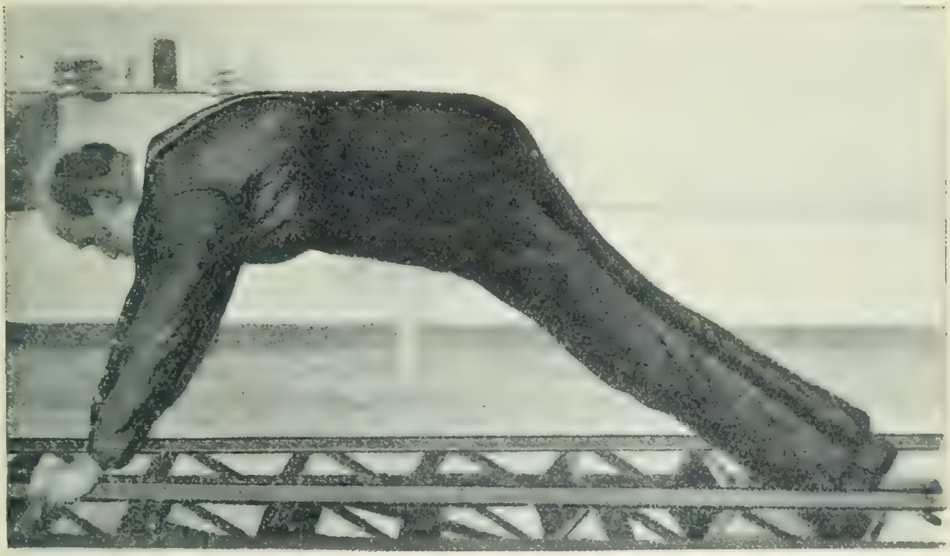
This case, which has been for some time under my care in the electrical department of the Glasgow Western Infirmary, seems to me of interest on account of the rarity of the condition. On 19th April, 1906, the patient, a joiner, 66 years of age, was at work on a ladder, about 12 feet above the floor, when the foot of the ladder slipped and ladder and man came down, the man uppermost and clutching the ladder with both hands, with both arms rigidly distended, so that when he reached the floor a considerable portion of his whole weight was thrown upon his hands. Immediately after the accident he felt the wrists "staved," and found that he could not raise the arms above shoulder level. Five weeks after the accident he returned to work, although still unable to raise the arms above the horizontal position. He continued to work for nearly two years, with increasing disability on account of weakness of the shoulder muscles and pain in the joints, until he was finally obliged to give up work entirely in the early part of this year.

Condition on admission (April, 1908).—The supra- and infra-spinati are much wasted; there is considerable tenderness to pressure over the right coracoid process, with aching pain in both shoulder-joints, and inability to raise the arms above the horizontal position. There is also difficulty in drawing the elbow backwards when it is kept fairly close to the side, so that the patient is unable to put his fingers in his waistcoat pockets. The arm muscles generally are somewhat weak and flabby, probably from disuse. Sensation over the back and arms is normal.

Electrical reactions.—The infra-spinati respond sluggishly to faradic, normally to galvanic stimulation.

The present condition shows practically no change, except that the infra-spinati now respond normally to faradic stimulation.

The case is evidently one of traumatic neuritis of both supra-scapular nerves. The supra-scapular nerve arises from the upper trunk of the brachial plexus, formed by the union of the anterior primary divisions of the fifth and sixth cervical nerves, and passes outwards and backwards beneath the trapezius to the supra-scapular notch, through which it passes, and is distributed to the supra- and infra-spinati and the shoulder joint. When the man was thrown suddenly on to his hands, with the arms rigidly outstretched in a forward direction, the effect was to force the outer end of the scapula violently away from the chest wall and so damage the nerve by stretching it.



The accompanying photograph, taken by the sister in charge of the out-patient department, shows the patient posed as he fell, and is inserted to make clear the exact manner in which the accident occurred.

II.—CASE OF PURE MOTOR APHASIA.

By Dr. W. K. Hunter.

This is a case of pure motor aphasia—that is to say, unassociated with agraphia or paralysis—and as such it seems of sufficient interest to bring before the notice of the Society.

The patient is a man, aged 62, a general dealer by occupation, and he was admitted to Ward 12 of the Glasgow Royal Infirmary on 16th October, 1908, suffering from loss of speech. The history of the illness, as told by his wife, is as follows:—

He went to bed on the evening of 15th October in apparenly quite good health, but when he awakened the next morning he was unable to utter a single word. He could understand everything said to him and he could reply by writing, but he had entirely lost the power of speech. Previous to this he had always regarded himself as a healthy man, though he was somewhat addicted to alcohol. Four years ago, when out walking in the street, he fell down unconscious, and remained in this state for half an hour; he was able, however, to walk home again. Six months later he suffered from "cardiac spasms," and was in hospital for eight days; but during this time there were no objective signs of illness observed, and, in particular, the cardiac condition was noted to be quite normal. Ever since this, however, he has complained of some cardiac pain.

He was admitted to hospital within a few hours of the onset of the aphasia, and he was then seen to be a robust-looking man and well-preserved for his years. There seemed to be a very slight degree of right-sided facial palsy, for when told to lay bare the teeth there was more movement at the left angle of the mouth than at the right. The saliva, too, tended to dribble away from the right side of the mouth. Tho tongue was protruded in the middle line, and its movements were normal. There was no paralysis of the arms or legs, and sensation seemed normal. The pupils were also normal in their reaction, and there was nothing notable on ophthalmoscopic examination of the fundi oculorum.

The patient could readily understand everything that was said to him, but on attempting to reply he simply mumbled unintelligible sounds, except that occasionally one could distinguish a "yes" or a "no," but no other word. He could write sufficiently well, and when he found he could not reply to a question in words, he at once sought for paper and pencil and wrote what he wished to say. He could apparently read, for when told to point out certain words which were named he did so correctly. He had no difficulty in recognising objects, and when these were given wrong names he shook his head till the correct name was mentioned.

The cardiac area was within normal limits, and the cardiac sounds, though rather feeble, were free from murmur. There were some small moist râles at the bases of both lungs, but otherwise the respiratory and alimentary systems were normal. Neither liver nor spleen was enlarged. The urine had a specific gravity of 1022, and contained a trace of albumen, but no sugar.

The patient's condition during the three weeks that have elapsed sinced the onset of the aphasia has shown very little change, except that the paresis on the right side of the face disappeared within twenty-four to forty-eight hours after its onset. The inability to speak, however, remains practically absolute. The patient can say "yes" or "no" and "John" (his Christian name), but this is his limit. He makes great efforts to converse, but the sounds he produces are not words, and he realises this himself. When told to say the days of the week he makes seven separate sounds, which have something of the rhythm of "Monday, Tuesday, Wednesday," &c., but he cannot say these words, though he practises them most diligently, hoping soon to learn to say them. He writes well for a man of his education, either spontaneously or to dictation. He reads a fair amount, and apparently understands what he reads. He readily picks out in the page any word named, and understands its meaning. He walks well, uses his hands and arms freely, and there is no evidence of paralysis in any of his muscles. The knee-jerks are active, but not exaggerated; there is neither knee-clonus nor ankle-clonus. The plantar reflexes are active but flexor in type. There is no anæsthesia. Hearing is acute, and the mental faculties generally show no signs of impairment. The patient is keenly interested in his own symptoms and in everything that goes on round about him.

The temperature has remained normal since the third day after admission, and the pulse during that time has ranged from 68 to 96. The quantity of urine passed daily has been of normal amount, and its specific gravity has ranged from 1010 to 1018. The albumen which was present on admission disappeared three days later, and on only one occasion has it been present since then. Examination of the sediment failed to reveal any tube-casts. The cardiac area remains normal in extent, and the heart-sounds, though rather feeble, are free from murmur. There is some slight œdema of the feet and ankles, and some small moist râles at the bases of both lungs behind. The radials are not unduly palpable, and show no evidence of atheroma; the blood-pressure since admission has ranged from 105 to 120 mm. of Hg. The nature of the cerebral lesion is therefore not very apparent, but the somewhat feeble cardiac action is suggestive rather of thrombosis than of embolism or hæmorrhage, there being no cardiac condition to account for the former and the blood-pressure being too low to explain the latter.

But of more interest than the nature of the lesion is its situation. A motor aphasia of this sort, occurring in a right-handed person, and without auditory or visual disturbances, is always due to a lesion in Broca's lobe or in the fibres which conduct downwards therefrom through the internal capsule to the centre for articulation in the bulb. When associated with right-sided hemiphlegia, as the aphasia frequently is, the lesion is most often in the internal capsule. In such a case, if Broca's convolution is not also affected, the patient usually recovers his power of speech within two to three weeks, the pathway for speech then being through the corpus callosum to the third right frontal convolution, and thence through the right internal capsule to the bulb. There is, however, no hemiplegia in this case of ours, and a lesion in the internal capsule would require to be most discrete to involve only the speech fibres without affecting those for ordinary muscle movement. Also, as there has been no recovery of the loss of speech the impulses cannot be passing by way of the corpus callosum, and the lesion, if subcortical, must therefore be high up in the speech pathway so as also to catch these asssociation fibres going to the opposite side. The lesion, of course, may be cortical. But if we recognise the distinction which Bastian draws between the symptoms due to a cortical and those with a subcortical lesion, the lesion in our case is apparently in the latter situation. Bastian points out that when the lesion is subcortical the patient can still attempt to pronounce words, for the centre where he stores the memory of the muscle movements necessary to pronounce words is still intact. When the lesion, however, is cortical, this memory is destroyed, and no such attempt can be made. He also holds that with a cortical lesion in Broca's lobe there are often signs of some mental confusion, due to the fact that certain thoughts being so closely associated with articulate language, the loss of the memory for revising the spoken words leads to some confusion of thought. Our patient has shown no signs of mental confusion, and indeed one would regard him as being very acute mentally. He also makes many efforts to speak, and he seems to get the rhythm of the words, but he cannot give them utterance.

Aphasia, then, may or may not be associated with hemiplegia, this depending on the situation and extent of the lesion; but it is distinctly rare to find aphasia apart from agraphia, and only quite a small number of such cases have been put on record. The cause of this close connection between aphasia and agraphia has given rise to much discussion, the chief question at issue being as to the localisation of the graphic (motor) centre. There are at least three views held on this point. The first is to the effect that Broca's lobe is the centre for writing as well as for speech; that writing, indeed, depends on an internal speech process which is passed on, as it were, to the arm motor area instead of to the lower articulating centres in the bulb. The second view maintains that there is a separate writing centre in the second left frontal convolution, with functions in every way analogous to those of Broca's convolution. The third view insists that writing is just a copying of visual images stored up in the higher visual centre; and when agraphia is present it is due to a lesion in the pathway between the visual centre and the arm centre in the Rolandic area.

According to the first view, a lesion in Broca's lobe would produce both agraphia and aphasia, and if one of these existed apart from the other the lesion would of necessity be subcortical, involving either the fibres going to the arm or those to the articulating centre, as the case might be. But if we accept the second view, aphasia apart from agraphia simply means that the third frontal convolution (or its projection fibres) has been destroyed while the second frontal convolution remains intact. The third view has little interest for us at present, for if it were correct, two separate lesions would be required to produce both aphasia and agraphia, and the frequent association of these two disturbances at the same time makes it most unlikely that they are not produced by one and the same morbid process.

If, then, the lesion in this case of ours should turn out to be a cortical one, involving Broca's lobe, it would be certain evidence that Broca's lobe does not contain the motor centre of writing. If, however, the lesion be subcortical, the case throws little light on the localisation of this centre.

III.—A CASE OF LITTLE'S DISEASE.

By Dr. W. K. Hunter.

This patient is apparently to be classed with that considerable group of cases in which, for some reason or other, the motor cells of the cerebral cortex have never reached their functional maturity. The lesion which is found *post-mortem* in such cases is an atrophic sclerosis, with degeneration and disappearance of the cortical ganglion cells; and it may be due to a variety of causes. If it occurs during fœtal life it is probably toxic in origin, the toxin being in the maternal circulation, as, for instance, when the mother has syphilis or some specific fever. If *post-natal*, it again is most often toxic, as when the child itself has a specific fever. If, however, it comes on at birth, it is more frequently due to a meningeal hæmorrhage, induced by too severe or too precipitate a labour. Most of the cases originally described by Little come under this last category; and as a difficult labour seems to be the most obvious cause for the trouble in this case I have classed it as one of Little's disease. The case, however, differs from those of Little in the almost complete absence of rigidity in the lower limbs, which condition was so prominent a feature in his cases.

The notes of the case are as follows:—

Wm. R., æt 3½ years, first came under observation on 16th October, 1908. He seemed to have been quite well formed at birth, but the labour was a very difficult one, forceps having to be used. He breathed badly for some hours after delivery, and for at least an hour and a half artificial respiration had to be applied. It was not, however, till the child was about 1 year old that the mother noticed that there was anything abnormal. At this time she remarked that he could not sit up properly and that he had little power in his hands, not being able to hold a "piece." He has never been able to walk, though during the past twelve months he has been able to stand, supporting himself by a chair or some other article of furniture. He has always been backward mentally, and he made no attempt to speak till about three months ago. Now he can say simple words, but he does not attempt to put them together to form sentences. He had measles when six months old, but he does not seem to have been very ill at that time. There is no history of convulsions.

The mother is a healthy woman, and she enjoyed good health during the whole of her pregnancy. She has had no miscarriages. The father is also well. There were five other children, but three of them are dead—one of diphtheria, one of bronchitis, and one of "general decline."

On examination, the child is seen to be rather pale, but he is well nourished and fairly well developed for his age. He is good-tempered and seems quite intellegent. He understands what is said to him, but he makes little attempt at speaking, and has not yet got the length of making up a sentence. The palate is high-arched, and most of the teeth in the upper jaw have rotted away.

He cannot sit up in bed not yet in a chair, owing, apparently, to inability of the muscles of the back to sustain the erect posture. There is some kyphosis in the lower dorsal region when he is propped up in bed, but when recumbent this almost entirely disappears. The head tends to fall down on the chest; it can, however, be retracted voluntarily without much difficulty. There are from time to time athetosis-like movements to be noticed in the face, chiefly about the angles of the mouth, but they are not very marked. He drinks noisily and clumsily, but there seems to be no difficulty in swallowing. There is no very apparent paralysis of the arms or legs. All voluntary movements, however, show some perversity. When attempting to grasp anything with either hand the fingers spread themselves out in a slow, tentacle-like fashion, and the co-ordination of the muscles is very clumsy, several attempts being made to catch an object before it can be actually laid hold of. The patient can stand when holding on to anything, but he can make little attempt at walking, and when he tries to do so the same sort of excited movements occur in the legs that are present in the arms in performing any definite action. The muscles of the limbs seem well developed, and their tone is good. There is no undue rigidity, unless in the muscles of the calf. When the leg is extended at the knee the foot cannot be fully flexed at the ankle, but when flexed at the knee flexion at the ankle can be readily carried out. There is no adductor rigidity, and no *pes cavus*. When standing the whole plantar surface is on the floor, though when attempting to walk he tends to go on the toes. The knee-jerks are active, but neither knee- nor ankle-clonus can be obtained. There is no properly developed Babinski sign.

The explaining of the clinical findings in this and other similar cases presents a problem of great interest. The disease, we have seen, is one of the cerebral cortex, but of the cortex before it has attained to its functional maturity, *i.e.*, before it has become the centre for all voluntary movement. In the lower animals the cortex can be removed without producing paralysis, showing that the cortex in primitive life does not play a very important part in initiating and controlling movement. In a child at birth its cortex is functionally undeveloped, and the primitive movements made at that age are probably initiated, as in the lower animals, from the basal ganglia. As the cortex of the child develops, its movements become more precise and better co-ordinated, but when the cortex is destroyed so that it cannot develop, then the movements tend to remain clumsy and ill-performed, such as we meet with in Little's paralysis. The rigidity which is so often met with in this disease would also seem to depend on the removal of cerebral control, but why there is so little rigidity in this case just described it is difficult to explain.

IV.—CASE OF HODGKIN'S DISEASE.

By Dr. R. Barclay Ness and Dr. John H. Teacher.

Drs. Ness and Teacher's communication will appear in a future issue of the *Journal.*

V.—CASE OF CARCINOMA OF THE STOMACH IN A BOY, AGED 14 YEARS.

By Dr. R. Barclay Ness and Dr. John H. Teacher.

Dr. Ness gave an account of, and Dr. Teacher showed pathological preparations from, a case of carcinoma of the stomach in a boy, aged 14 years and 9 months. Apart from congenital cases, this is one of the earliest cases on record. When the patient came under observation first, on 27th August, 1908, he gave a history of abdominal pain extending over two years, and jaundice of two months' duration. The latter had all the characters of obstructive jaundice, and was very intense. Further, a small umbilical tumour had been present for between three and four months. This latterly was about the size of a hazel-nut, and was neither painful nor tender. On two occasions, once as recorded in the history and once while the patient was under observation, there was vomiting of altered blood. On one occasion melæna was noticed. The examination of the abdomen showed the presence of considerable tympanitic distension, with tenderness of the epigastrium and right iliac region, and latterly of ascites. The condition of the abdomen did not permit the detection of any tumour mass within the abdomen, nor the exact condition of the gall-bladder. The liver appeared slightly enlarged. The circulatory and respiratory organs showed little departure from the normal. Temperature ranged between 97·2° and 99·8° F. A moderate leucocytosis was present.

Patient gradually became weaker, and ascites became very marked. As the exact morbid condition was obscure, and the patient was gradually sinking, it was agreed to open the abdomen. This was done on 21st September by Dr. Alex. MacLennan, after withdrawing by puncture the ascitic fluid. Opportunity was taken at the time to make an anastomosis between the gall-bladder, which was distended, and the jejunum. The nature of the case was made out by the examination of a little tumour mass removed for microscopic examination. Patient died eight days later, on 29th September, 1908.

VI.—CASE OF POSSIBLE INCIPIENT ADDISON'S DISEASE.

By Dr. J. S. M'Kendrick.

Dr. M'Kendrick's paper will appear in a future issue of the *Journal.*

OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

Session 1908-1909.

Meeting I.—28th October, 1908.

The President, Dr. J. M. Munro Kerr, *in the Chair.*

LANTERN AND MICROSCOPIC DEMONSTRATION OF AN EXTREMELY EARLY HUMAN OVUM (TEACHER-BRYCE OVUM).

By Dr. John H. Teacher.

The specimen was found by Dr. Teacher in a portion of decidual membrane which had been sent to him by Dr. Douglas Brown for examination with a view to determining whether it was part of an abortion or a membranous dysmenorrhœal membrane. The patient, who had never been pregnant, had passed the date of her period by several days. The full history of the specimen will be given in a later communication.

The ovum proved on examination to present so many features of interest, and so many peculiarities not previously seen in the human ovum, that Dr. Teacher invited Dr. T. H. Bryce to collaborate with him in the description of it, in order that justice might be done to the difficult embryological questions which were raised. Further, it was deemed wise, before publishing any detailed description, to submit the specimen to those most competent to criticise, and it was accordingly demonstrated at the meeting of the German Anatomical Society in Berlin last April. Very favourable opinions were expressed as to the general condition of the ovum, and it was also accepted as being most probably normal, and distinctly younger than that of Peters. This conclusion has since been accepted by Prof. Peters himself in a recent number of the *Monatschrift für Geburtshülfe und Gynæcologie.* The specimen ranks, therefore, as the earliest stage of the human ovum at present known.

MEETING II.—25TH NOVEMBER, 1908.

The President, DR. J. M. MUNRO KERR, *in the Chair.*

DEMONSTRATION ON THE ESTIMATION OF THE AGE OF EARLY HUMAN OVA AND THE NATURE OF MENSTRUATION.

BY DR. JOHN H. TEACHER.

[ABSTRACT.]

The communication was of the nature of an appendix to the demonstration of the Teacher-Bryce ovum on 28th October. For the calculation of the age of that ovum very precise data were obtained, and it seemed to the authors of the memoir possible, on correlating these with the data obtainable from other early ova, to construct a table showing the ages of early ova with more exactness than was possible under the customary rule—the convention of His.

In the case of the present ovum practically only a single coitus had to be considered, and the total interval of time between this and the completion of abortion was sixteen and a half days. If twenty-four hours were allowed for the time occupied by the spermatozoa in traversing the genital passages and effecting fertilisation, and about a day were deducted for the period which was occupied by the process of abortion, a probable maximum age of fourteen and a half days is obtained.

With respect to menstruation, the calculation is as follows:—The abortion commenced eleven days after the date on which menstruation should have begun. The degenerative changes of the endometrium are known to commence some time before the appearance of the discharge. It therefore seems necessary to allow some time (possibly as much as three days) during which the fertilised ovum exercises some influence over the uterus, which results in the arrest of the destructive process.

The minimum possible age might therefore be taken as at least twelve days. A computation of from thirteen to fourteen days is therefore probably correct. Moreover, this was found to agree very well with such facts of comparative embryology as were applicable.

Dr. Teacher demonstrated a table showing the estimated age of twelve selected early ova, ranging in size from the 0·77 of a millimetre of the Teacher-Bryce up to the 10 millimetres of v. Spee's "Gle." Fairly precise data for the estimation of the age of ova are obtained from five out of the other eleven cases, namely, those of Merttens, Beneke, Reichert, Rossi Doria, and Eternod. By utilising these data and correlating them with the dimensions and state of development of the ova, it was found that the ova could be arranged in a series in which dimensions and ages gradually increased. The present ovum being taken as from thirteen to fourteen days, that of Peters was estimated as from fourteen to fifteen, and the others formed a series of which the last number was v. Spee's "Gle," regarded as from nineteen to twenty days old.

Having obtained in this manner a chronological sequence in which the age is calculated from fertilisation, a second table was constructed to show at what periods of the month fertilisation and embedding would have taken place on the basis of the first table. The termination of pregnancy being known, the date of fertilisation was arrived at by subtracting the age of the ovum in each case, and allowance was made for the various circumstances under which the ova were obtained. The date of embedding was fixed by assuming, in accordance with the views of v. Spee, that seven days elapse between fertilisation and implantation of the ovum in the endometrium.

The second table showed that, if the ages of the ova be correct, fertilisation may occur at any time during the inter-menstrual interval, and that embedding may take place either in the period of quiescence or in the period during which, without the occurrence of pregnancy, the pre-menstrual and menstrual changes would have been progressing.

The result of this seriation of these early cases is not consistent with the older views regarding menstruation and its relations to embedding, for it carries with it the conclusions that the menstrual decidua is not a preparation for the reception of an ovum in the old sense of the words, that menstruation is not an abortion of an unfertilised ovum, and that ovulation does not necessary coincide with menstruation. The conclusion is not inconsistent, however, with the recent views on menstruation as developed by Heape and supported by a considerable number of comparative researches.

According to Heape, the menstrual cycle in man and monkeys is homologous with the œstrus cycle of the lower mammals. The œstrus cycle is divided by Heape into pro-œstrum, œstrus, and di-œstrum.

Menstruation in the human subject corresponds with the latter part of pro-œstrum as first pointed out by Heape, and the period of desire (œstrus), during which alone animals will receive the male, corresponds to the days immediately following the cessation of the menstrual discharge in the human female. This homology is apparent, not merely in the gross phenomena of the two processes, but also in the histological changes which accompany them.

In the lower animals, it is clear that the œstrus cycle is a preparation of the endometrium for the reception of the fertilised ovum: but the preparation lies not in the phenomena of the pro-œstrum but in the reparative processes which follow it. In the human subject and monkeys, according to Heape, the menstrual cycle is a preparation for the reception of a fertilised ovum in the same sense, viz., the reconstitution of the endometrium after the destructive changes of the pre-menstrual and menstrual periods of the cycle is the real preparation for the reception of the fertilised ovum. The data contained in the tables lead by a different route to precisely the same conclusion.

Menstruation is thus a cyclical process which provides for the maintenance of the endometrium in a suitable condition for producing the decidua of pregnancy, but the ovum is not dependent on the development of a menstrual decidua for a suitable nidus upon which to become embedded. The uterus is capable of developing a decidua of conservation whenever its integrity is threatened by the growing ovum.

Dr. Samuel Sloan said he listened with much pleasure to the demonstration which gave the most recent theories on menstruation. Many years ago Dr. Stirton had given a paper in which he stated that in very cold regions there was scarcely any discharge during menstruation. He would be glad to hear Dr. Teacher's comment on that statement.

Dr. A. MacLennan congratulated Dr. Teacher on the possession of such an ovum, the youngest from its size, which is a better estimate than by taking the age. It was now a well-known fact that ovulation has nothing to do with menstruation. In cases where the ovum has become embedded in the uterus after menstruation, it may have been lying in the tube in a state of segmentation. He thought such a demonstration required careful thought before it could be discussed.

Dr. Donald Duff asked Dr. Teacher's views on the formation of the corpus luteum; if it occurs every month it should be seen more frequently in the ovary when examined at operations.

Dr. John Lindsay complimented Dr. Teacher on his valuable demonstration, the most interesting point being the table on the ages of the various ova. That the series should have fallen into natural order seems surprising when most occurred by abortion. The ova obtained by operation and by abortion may be pathological; those by abortion being *ipso facto* pathological. Dr. Lindsay had examined four ova, and three of these showed malformations and one was macerated. The uterus is a very tolerant organ, and when it casts off the products of conception it means that they are no longer worth retaining. Therefore, the majority of the causes of abortion lie in the ovum itself. In the early stages of development the ovum is very plastic and undergoes changes very rapidly, interference causing a gross departure from the ordinary course of events. Nothing can be deduced from the size of the ovum: an embryo of apparently six weeks of age may be no further developed than one of three weeks.

The *President* had not much to add to the discussion. The importance of the demonstration lies in the fact that the ovum is embedded in the fresh young endometrium. As examples of ovulation being independent of menstruation, there is pregnancy occurring during lactation, when menstruation is suppressed. In young women with absence of menstruation, when the abdomen is opened for the cure of dysmenorrhœa, the ovaries are sometimes found to be normal in size and yet the uterus may be mal-developed. It must not be forgotten that the two are closely related, as when both ovaries are removed as a rule menstruation ceases. The causation of menstruation is still unknown: its cyclic effects occur sometimes during pregnancy as a disturbance every four weeks. The estimation of the duration of pregnancy as from the last menstrual period is usually correct. The latest papers of Leopold show that ovulation may occur any time during the menstrual cycle. Graaffian follicles rupture when the ovary is most congested, that is, when the discharge is beginning.

Dr. Teacher, in reply, thought that hæmorrhage does not occur during menstruation among some of the primitive races in cold regions: in some Australian races it is in abeyance at times. The corpus luteum as a cause of menstruation is not worth an argument; it is a gland to resist the development of the ovum. A corpus luteum is formed every time an ovum is discharged: a recently-discharged follicle shows luteum tissue. In reply to Dr. Lindsay, he might quote the reply of Peters—"The ovum may be pathological, but it is the only one." Peters' ovum may be entirely normal; the Teacher-Bryce ovum is quite consistent with many of the points got from the other ova. In going over the literature, twelve were taken and the others discarded. Many aborted ova are normal, therefore a general statement of all being *ipso facto* pathological is entirely wrong. The cause of abortion in one of the specimens was influenza in the mother, and in another the abortion was brought on by dancing. Among monkeys menstruation goes on all year, but there are only a few months where ovulation takes place. The ovum is embedded in the young healthy endometrium, and the ovum is capable of embedding itself anywhere irrespective of menstruation. In the pregnant uterus of a pig the embryo further away from the centre is younger than that near.

GLASGOW NORTHERN MEDICAL SOCIETY.

At the third meeting of the session, held on 1st December, 1908, Dr. J. G. Gray, the President, in the chair,

Dr. James Scott read a paper on "The Treatment of Tuberculosis in the Workingman." After some introductory remarks dealing with the frequency of phthisis, the classification of cases, the curability of the disease, and the essentials of treatment, Dr. Scott went on to deal more particularly with the sanatorium treatment and its value in the case of the consumptive workingman. The difficulty of early diagnosis and the economic conditions which present the adoption of treatment in the earliest stages were considered, and the value of the different early signs and symptoms discussed. He pointed out that the immediate results of the sanatorium treatment were as a rule excellent, but the duration of the treatment was limited to a few months, and relapses, on returning to the former mode of living, were all too common. The sanatorium treatment can therefore only be looked upon as the beginning of the cure, and judicious after-care is necessary to reduce the tendency to relapse. In this connection the establishment of labour colonies in association with the sanatoria might be of some value. Finally, the value of the segregation of advanced cases, and the available methods of dealing with the vast numbers of cases which cannot obtain admission to sanatoria, were dealt with, and in this connection the value of early notification, followed by educative treatment, was emphasised.

Some discussion followed, which was taken part in by Dr. A. K. Chalmers, Medical Officer of Health, and others.

REVIEWS.

Operative Midwifery, By J. M. MUNRO KERR, M.B., C.M. London: Baillière, Tindall & Cox. 1908.

DR. MUNRO KERR has chosen an opportune moment for issuing a treatise devoted to operative midwifery, as it is over twenty years since the last edition of Barnes' *Lectures* was published. In common with all who follow the obstetric art, Dr. Kerr is an ardent admirer of "the Nestor of British midwifery," as Sir A. R. Simpson rightly called the late Dr. Barnes, and the author has felt that he could not do better than follow "very much the same lines as Barnes, whose *Lectures* have always appeared to him nearly perfect." The result is the production of a work which is a credit to the Glasgow school of midwifery, in which the author holds an honoured position.

Kerr's *Operative Midwifery* will take a leading place amongst obstetric text-books, and it should receive a warm welcome from the general practitioner, who will find in its pages reliable advice to guide him how best to act in any difficulty.

The author has gleaned extensively from British, American, and Continental literature, but in such a manner as to enhance the value of the book as a work of reference. His wide experience has also enabled him to fully state his own views, while criticising or agreeing with those of others.

The first twenty chapters deal with dystocia due to abnormalities in the three factors of labour—the forces, the passages, and the fœtus. Chapters XXI to XXIX, covering 200 pages, detail the various obstetric operations, while such subjects as abortion, ectopic pregnancy, and the hæmorrhages all receive adequate treatment.

Dr. J. W. Ballantyne, of Edinburgh, contributes a chapter on double monsters, and in the appendix will be found a short article on the measurement of the pelvic diameters by the Roentgen rays, by Dr. Riddell, medical electrician to the Glasgow Royal Infirmary.

The excellent illustrations, many of them from original drawings by Mr. A. K. Maxwell, are deserving of special mention. Fig. 291 is, however, placed upside down, and

Fig. 292, showing Schultze's method of performing artificial respiration, is not quite correct. The head must be steadied by the ulnar aspects of palms and wrists, as is obvious to anyone who has practised the method, and not as stated in the text.

Medical Gynecology. By HOWARD A. KELLY, A.B., M.D., LL.D., F.R.C.S. Hon. Edin. With 163 Illustrations, for the most part by MAX BROEDEL and A. HORN. London: Sidney Appleton. 1908.

IN his preface Dr. Kelly says that gynæcology "has grown to the dignity of a major surgical speciality, so extensive that many gynæcologists of to-day claim the entire field of abdominal surgery as their proper domain by right of discovery and conquest." He considers that the period of surgical evolution is now at an end, and the time has come to review the relationship of the speciality to the field of general practice. He says "it will be my effort in the following pages to review my special field, in an endeavour to return to the general practitioner that portion of it which he ought to recover by right of his prior lien." While surgical interference is often necessary in gynæcology, there are many conditions which can be treated medically, and we cordially welcome this effort of one of the greatest of gynæcological surgeons to show that there are methods of treatment for many gynæcological ailments other than the knife.

In the preparation of the book Dr. Kelly has had the assistance of a number of well-known authorities.

The chapter on neurasthenia, hysteria, &c., was contributed by Professor Barker, an expert neurologist, well qualified to speak upon a condition which is one of the most difficult with which a gynæcologist has to deal. Dr. Lilian Welsh, Professor of Physiology in the Woman's College of Baltimore, and Dr. Mary Sherwood, Director of the Gymnasium at the Bryn Mawr School, have written the chapter on the hygiene of the growing girl. The importance of the proper care of girls at the period of puberty, which usually corresponds with school days, is now being more and more recognised. Injudicious exercise, either mental or physical, at this critical time in a girl's life may result in misery for her in after life. In this chapter very sound advice is given.

The chapters on gonorrhœa and fibroid tumours of the uterus have been written by Dr. Walter L. Burrage; and Dr.

Prince A. Morrow has written on syphilis, Dr. Edward J. Ill on abortion, Dr. W. Griffith on movable kidney, Dr. Thomas R. Brown on enteroptosis, Dr. W. L. Dickinson on masturbation, and other well-known writers have assisted in various ways in preparing the book.

There is a very detailed description of the methods of examining patients, and the final chapter deals with post-operative conditions.

The book is well illustrated. We have confidence in strongly recommending it, especially to general practitioners.

The Maternity Nurse's Charts and Case-Book. By GERTRUDE C. MARKS. London: Baillière, Tindall & Cox. 1908.

THIS booklet contains fourteen charts arranged to record the morning and evening temperatures during the first two weeks of the puerperium, space at the side being reserved for name of patient, date, sex of baby, and weight. "Remarks on the Case" can be written on the page opposite each chart. It will prove useful to maternity nurses engaged in private work who desire to keep a permanent record of all cases they attend.

The Edinburgh Stereoscopic Atlas of Obstetrics. Edited by G. F. BARBOUR SIMPSON, M.D., F.R.C.P.E., F.R.C.S.E., and EDWARD BURNET, B.A., M.B., Ch.B. In Four Sections, each containing 25 Subjects with Descriptive Text. London: The Caxton Publishing Company. 1908.

A REVIEW of Section I appeared in the September number of the *Glasgow Medical Journal.* The series of stereograms in Section II maintains the same standard of excellence, and will prove a useful addition to the teaching appliances of the tutorial classroom.

Plates 26 to 28 complete the series of deformed pelves. Plate 29, with photographs of three patterns of calipers, might well have been omitted, as students are taught to handle and use these instruments. Plates 31 and 32 are stereograms of the external genital organs. Plates 33 to 41 depict a series of dissections of the pelvic organs, which, for clearness of definition, leaves nothing to be desired, if we except the false impression of undue depth of cavities inseparable from photography. The remaining six stereograms show the uterus at various stages of gravidity, and, with one exception, the organ has been opened to display the ovum or fœtus.

The Transactions of the Edinburgh Obstetrical Society. Vol. XXXII. Edinburgh: Oliver & Boyd.

THERE are several very interesting and instructive papers in this volume. The following may be mentioned:—

"Intractable Uterine Hæmorrhage and Arterio-sclerosis of the Uterine Vessels," by Elizabeth H. B. Macdonald, M.A., M.D. This is an able and scientific discussion of a difficult subject. The author begins by describing shortly the three groups of causes of abnormal uterine hæmorrhage, namely, (1) abnormalities in the periodic ovarian stimulation; (2) conditions giving rise to muscular insufficiency, either from loss of tone and consequent deficient response to vaso-motor stimulation or from actual deficiency of muscular tissue; (3) conditions giving rise primarily to continued congestion of the endometrium from increased arterial supply or venous obstruction. Concerning arterio-sclerosis, she says that to speak of it as the cause of the hæmorrhage is a mere confounding of words. The essential point is the condition behind the vessel change. It is readily conceivable that if the increase in arterial pressure happen suddenly, or in a uterus of deficient musculature, severe hæmorrhage may occur before any marked vascular change has taken place. At the opposite extreme are those cases where the changes have extended to the vessels of the endometrium, and where the diagnosis can be made from the curettings. In the discussion which followed, Dr. Haultain claimed that in cases of hæmorrhage in young women in whom curetting had failed, and where the patients were invalided, it was better to remove the uterus and leave the ovaries than to remove the ovaries and leave the uterus. The paper is illustrated with sixteen fine microphotographs.

"Epilepsy and the Status Epilepticus in connection with Pregnancy and Labour," by R. Jardine, M.D. In this paper four cases are related. The author's conclusions are (1) that the points which determine the diagnosis of epilepsy are a neuropathic family history, the presence of stigmata of degeneration, and, above all, the history of pre-existing attacks, and (2) that the presence of albuminuria does not necessarily exclude the diagnosis of epilepsy. On the other hand, if albuminuria is not present throughout the case, it is almost certain not to be eclamptic.

"The Byrth of Mankynde." In vol. xxxi of the *Transactions*, Dr. J. W. Ballantyne dealt with the author and the editions of this remarkable book. In the present volume he completes the consideration of the subject by discussing the contents of the work and the interesting light thus thrown upon sixteenth century midwifery, an era when empirical midwifery was beginning to give way before the advance of scientific obstetrics.

Rotunda Practical Midwifery. By E. Hastings Tweedy, M.D., F.R.C.P.I., and G. T. Wrench, M.D. London: Henry Frowde and Hodder & Stoughton. 1908.

Dr. Tweedy has written the preface, and from his remarks we are led to infer that Dr. Wrench has compiled the book, based on the present teaching of the Rotunda Hospital. The examining bodies are held by Dr. Tweedy to be solely accountable for the present system which produces "men with considerable theoretical, but a small amount of practical, knowledge, and it is for those who find themselves in this predicament that this book has been written."

It is more extended clinical training, and not another book, that is required to remedy such a state of affairs, and we cannot say that the *Rotunda Practical Midwifery* will further this object.

We read that pulling on the cord is quite justifiable if you are sure the afterbirth has left the uterus—a dangerous piece of advice to give a student. Five methods are given how to tell when the placenta is in the vagina, but no mention is made of the most reliable of all, namely, noting the changes in size and shape of upper and lower uterine segments. Schultze's mechanism of separation of the placenta is given as occurring in the majority of cases, contrary to general experience.

The reader is rightly advised that if labour begins during the day he should go at once, as it is essential to know as early as possible if anything is wrong; but if it begins in the early morning the nurse is to give the patient a sleeping draught and write a letter to the doctor, presumably that his rest may not be disturbed before breakfast. Is it not as essential to go early at night as well as during the day?

Less than 2 centimetres of the ureters extend in front of the base of the broad ligament, and they are rarely palpable, yet the student is gravely informed that enlargement of the ureter is a reliable sign of pregnancy at the end of the second month, and that it can be palpated by pushing the finger against the posterior aspect of the pubic bone.

How would an examiner receive the information from a student that, where a child has escaped through the rent in complete rupture of the uterus, an attempt should be made to pull back the child and deliver it breech first?

Decapitation by blunt hook and scissors is described, but no mention is made of the sharp hook, such as Jardine's modification, which severs the neck with ease and simplicity compared to the Rotunda method.

The authors hold the injection of glycerine into the uterus, for the induction of premature labour, a safe and satisfactory procedure. We thought this method, which was short-lived owing to its great dangers, had long been abandoned.

Such an important subject as the treatment of urgent cases of post-partum hæmorrhage is dismissed in four lines, which give the advice to "pommel and knead" an exhausted uterus.

In difficult forceps cases, rocking the forceps from side to side, or up and down during traction, is advised, and no objection is offered to the operator fixing his feet against the bed and pulling with all his force.

We note two inaccuracies: complete breech is described as incomplete, and *vice versa*; anterior parietal presentation in flat pelvis is called posterior asynclitism—the reverse is the case.

We have quoted enough to let the reader judge for himself of this recent contribution to obstetric literature.

Medical Jurisprudence, Toxicology, and Public Health. By W. G. Aitchison Robertson, M.D., D.Sc., F.R.C.P.E., F.R.S.E. London: Simpkin, Marshall & Co. 1908.

Of recent years the number of new books on the above subjects has become excessive, and while there is always room for books on any subject where the author can give either much observation acquired at first hand, or at least treat the subjects in a new manner, it cannot be said that there is any such *raison d'etre* in the present case. With so many excellent text-books on the subjects, many of them by men of world-wide eminence, it is difficult to see what good purpose can be served by a work like the present, which hardly does more than add a name to the list of authors of the subjects. To a certain extent, of course, a man inevitably stamps his individuality upon a book which he compiles, unless in the case of the grossest plagiarism, and to that extent this book will prove valuable ; while its size and compactness may make it a greater favourite with students than other and better works already in the market.

Where there is so much that is pure compilation it is not easy to consider the contents of a work in anything like detail, but a few pages may be taken as illustrations. On page 53 the author retains the old and objectionable name of *post-mortem* staining for the colouration (not staining) due to gravitation, and reiterates the usual errors by stating that hypostatic patches are sharply outlined and do not appear for some hours after death. On page 65 the reasons given for the very early putrefaction of the brain of infants do not include the main reason. In Chapter IV, which is headed throughout "Medico-legal *Post-mortem* Examinations," we find such matters considered as apparent death or suspended animation, dying declaration, modes of death, and sudden death from natural causes. On page 94 we are informed that in the case of capital punishment, "at present the prisoner is not executed until fourteen days after his trial." This is erroneous, and, in fact, is inconsistent even with the statement on the same subject given on page 21. On page 97 no distinction is drawn between perforating and penetrating wounds, and in the same place it is wrongly stated that the fact of there being only one entrance wound and several internal wounds shows that the instrument had been partially withdrawn and thrust in again in a new direction.

On page 166, in connection with drowning, it is stated that in certain cases, owing to laryngeal spasm, resuscitation may be possible after immersion for twenty or thirty minutes. If this is correct, the fact will be of importance to, amongst others, pearl divers, who should assiduously practice the production of laryngeal spasm.

Chapter X, dealing with death from starvation, cold, heat, and lightning (including electric discharges), is, though short, one of the best in the book, and shows evidence of originality in some respects. In the same way, the next two chapters, dealing respectively with pregnancy in relation to legal medicine, and infanticide, are readable even if there is nothing new in regard to the matter itself. The chapter on insanity should not appear in a work of this kind nowadays ; this department should be entirely in the hands of special experts in insanity. The succeeding chapter, on life assurance, is also out of place, but merely relatively so, as its proper place is in the section on public health.

The section on toxicology is condensed to such a degree that its value, even from a student's point of view, is very theoretical. In the first chapter of this section it is stated that "legally qualified druggists are alone permitted to dispense or sell poisons." Many medical practitioners do not appear to be aware of this. On page 259 no distinction is made between the two groups of scheduled poisons; the regulations given refer to one of the groups. On page 268 the class of physical antidotes is not given, although, in the paragraph immediately beneath that referring to the antidotes, it is stated that charcoal acts physically by absorbing alkaloids.

The section on public health is so excessively condensed that it is practically impossible to derive much information, and the student will do well not to rely for the necessary information upon this section. For instance, the wide subjects of sanitary administration and sanitary law are dealt with in about twelve pages.

The illustrations are few, and most of them are not new, although in the preface acknowledgment is made of seven only.

Public Health Laboratory Work. By Henry R. Kenwood, M.B., D.P.H., F.C.S. With a Section on Public Health Bacteriological Work by W. G. Savage, M.D., B.Sc., D.P.H. Fourth edition. London: H. K. Lewis. 1908.

That this work has reached its fourth edition in a very short space of years is one of the best testimonials to its usefulness, and in the present edition the authors have been successful in maintaining the high standard which has characterised the work from its inception. Indeed, it is not too much to say that this work is generally recognised throughout Great Britain and the Colonies as the standard book on the subject, especially for students proceeding to a qualification in public health.

The arrangement, on the whole, is excellent. The student is first introduced to the comparatively simple processes in water analysis, passing on afterwards to soil, air, milk, butter, and foods generally, the bacteriological part coming last.

The general plan of previous editions has been followed, perhaps too slavishly, as possibly the value of the work might have been still further enhanced by some re-arrangement and considerably more re-writing of portions. This applies even more to the illustrations, which are, with few exceptions, quite beneath the general standard of excellence of the work as a whole.

That part of Chapter XVII dealing with acidimetry and alkalimetry might, with advantage, have been put on the first page instead of at the end of water analysis.

In future editions it would be an advantage if the "Introductory Notes" in Chapter I were much amplified, with a full description of all apparatus employed in public health work.

Hardness in water is estimated solely with regard to the action on soap due to the agents causing the hardness. No indication is given as to how such possible factors as free CO_2, acids generally, common salt, &c., may be eliminated or allowed for in the estimation.

The "scheme" on page 123 for effecting analysis in the shortest time is particularly valuable for candidates for the diploma in public health, who are usually given far too little time for an examination of this description.

The analysis of sewage and sewage effluents is of such increasing importance that the six pages or thereby devoted to this is too little, although the author has done well under the circumstances. The method of Letts and Blake for the estimation of dissolved oxygen will be found easy and remarkably accurate, and is applicable to ordinary water analysis without modification.

Part III, dealing with the examination of soil, shows the difficulties attending this section of analytical work. In anything like adequate detail the examination of soils is almost outwith the scope of ordinary public health laboratory work.

In the estimation of oxygen in the air no mention is made of the method by nitric oxide gas, or by explosion with hydrogen, two methods which are both reliable and easily performed in the laboratory. In the same way Haldane's method for the estimation of CO_2 in air is not mentioned.

The detection of ozone in the air, and the possible fallacies in connection therewith, are fully treated in Chapter VI, in the part on air analysis.

The whole of Part V, dealing with the analysis of milk, butter, cheese, foods generally, alcoholic beverages, vinegar, lime juice, condiments, sugars, coffee, cocoa, tea, infants' foods, preserved provisions, antiseptics, colouring agents and poisons in foods, is excellent throughout, and has been brought well up to date.

Part VI, dealing with the chemical examination of disinfectants, is of small actual value, though important to the student entering for examination, questions on this section being frequent. Better information on this point is obtained in Chapter V of Part VII, dealing bacteriologically with the determination of antiseptic and germicidal power. Part VII is throughout of considerable value, and composes the bacteriological section of the work.

As already indicated, the illustrations are, as a rule, of inferior merit to the text. For example, the plates at the beginning of the work should now be expunged and replaced, if thought necessary, by photographs of the objects sought to be depicted. The same remarks apply to the very diagrammatic representations of the moulds and starch grains. In other parts additional illustrations might be inserted with the greatest advantage. It is to be remembered that the book is largely employed by students.

Forensic Medicine and Toxicology. By J. DIXON MANN, M.D., F.R.C.P. Fourth Edition. London: Charles Griffin & Co., Limited. 1908.

PERUSAL of this edition only confirms the view we expressed of the work in a former review, viz., that it is one of the best books on forensic medicine in our language. The present edition has been subjected to further careful revision, and in the section on toxicology several poisonous substances have been added.

In the chapter on legal procedure in Scotland, however, we observe one or two mis-statements which ought to be corrected in the next edition, for they have persisted through the whole of the editions. The first of these statements is this—"Any person who is supposed to know anything about the case is interrogated privately before the sheriff, or, to use the legal term, is 'precognosced.'" The fact is, that witnesses are precognosced solely by the procurator-fiscal, who is authorised to do so by warrant granted by the sheriff, but the sheriff has nothing to do with the act of precognoscing. The second is contained in the following statement:—"If a complete examination of a dead body is requisite, the procurator-fiscal issues a warrant to the medical practitioner. . . . The warrant is countersigned by the sheriff or justice," &c. The procedure, on the other hand, is that the fiscal petitions the sheriff to grant warrant for certain medical men named in the petition to make a dissection of the body, and for the fiscal to cite witnesses for precognition. The sheriff grants as craved, and the petition, now signed by the sheriff, becomes the warrant.

The whole work is well worthy the attention of students and medical practitioners alike, and will well repay study of its contents. The publishers are to be congratulated on their share of the work.

Treatment of Internal Diseases, for Physicians and Students. By DR. NORBERT ORTNER, of the University of Vienna. Edited by NATHANIEL BOWDITCH POTTER, M.D. Translated by FREDERICK H. BARTLETT, M.D. Philadelphia and London: J. B. Lippincott Company. 1908.

THIS volume, which comprises Professor Ortner's lectures upon the therapeutics of internal medicine, has been carefully revised and brought up to date in this its fourth edition. As its name implies, it is essentially a treatise on treatment. Even the pathological physiology of the diseases discussed is only mentioned as far as it bears on the treatment of those diseases. Prophylaxis is discussed casually, and in but few sections. As a treatise on treatment of internal diseases, one cannot carefully read this volume without being impressed by its thorough exhaustiveness. Indeed, there is no aspect of the treatment of disease—whether the mechanical, dietetic, climatic, hydrotherapeutic, or other extra-medicinal method—that is not treated in the same painstaking manner. So far as the medicinal treatment of disease is concerned, there is, in our opinion, too much faith expressed in drugs, and too many prescriptions are given. Still, as most of the latter are Dr. Ortner's, and are culled from his own experience, this is a fault in the volume more apparent than real, and prevents the work from being criticised as a mere compilation. The treatise has not suffered from its being translated from the German into English by Dr. Bartlett, as the result is idiomatic and terse. We can confidently recommend the volume to the notice of general practitioners and students as one that will amply repay them for a careful perusal.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

MEDICINE.

Partial Auditory and Visual Aphasia with Object Blindness, due to Cerebral Abscess. By Colin K. Russel, M.D. (*Montreal Med. Jour.*, July, 1908).—The patient was a locomotive engineer, 59 years of age, and married. He was a right-handed man, and his personal and family history were of no importance.

Three weeks before Dr. Russel saw him he had a peritonsillar abscess on the left side of his throat, which burst and cleared up in about ten days, leaving him perfectly well. He had also two small abscesses in the floor of the mouth, which likewise cleared up. About two days later he began to complain of headache and nausea, but did not vomit, and went to bed suffering from these symptoms about twelve days before Dr. Russel saw him. The headache continued to be severe, and it was noticed that he could not always remember the names of people or objects. Two days later, in making up his monthly statement, he could read and write, but could not understand figures, and this part of the work had to be done for him.

When first seen by Dr. Russel, temperature, pulse, and respirations were normal; there was no paralysis, and the reflexes were normal, except that the abdominal and epigastric reflexes were absent on the right side. Babinski's extensor response developed just before death. There was a slight optic neuritis, more marked on the left side, and right homonymous hemianopsia; deafness of the right ear also developed.

The patient was conscious, and seemed of more than average intelligence. He understood and obeyed most simple commands, such as to move a limb or turn his body in bed, but was apt to continue the movement after being commanded to change to another; more complicated commands were not perfectly comprehended.

Spontaneous speech was perfect until he came to names, but these he could not remember. If the name were repeated he recognised it at once, and repeated it correctly. There was no agrammatism or dysarthria. There was absolute alexia and word-blindness, *i.e.*, reading was impossible; he could not even spell out the letters, nor did it help him to trace them with his finger; he could not read numbers, and writing and copying were also impossible.

There was some object blindness, and though he seemed to recognise his sons, and that they were his sons, he could not name them. When shown a pencil he could not recognise it, but as soon as he had it in his hand he knew what it was for, but could not name it, though he said he had used it "often enough." He recognised the name immediately it was suggested.

An abscess of the brain was diagnosed, situated between the angular gyrus and the posterior part of the first temporal convolution. Unfortunately the patient sank rapidly, and died before operation was possible.

On trephining the skull *post-mortem*, which was all that was allowed, the meninges and surface of the brain were congested, and the convolutions flattened.

On incision of the cortex an abscess was at once opened into, situated in the angular gyrus and posterior part of the first temporal convolution. It measured about 1 inch in diameter, was circumscribed by a definite wall, and contained thick, greenish, odourless pus.

This case calls attention to possible sequelæ of a more or less ordinary peritonsillar abscess.

Dr. Russel concludes that this was primarily an intracortical sensory aphasia, the optical aphasia of Freund, in which the patient, owing to the fibres connecting the auditory word centre with the visual occipital cortex being interrupted, could not recall the names of objects, nor persons seen, nor the visual image associated with the names of persons or things. With the gradual growth of the abscess the optic radiations became involved, causing homonymous hemianopsia, and, later, the angular gyrus, with, first, loss of power of recognising numbers, and, later, complete alexia. Finally, as the abscess came to press on the posterior part of the first temporal convolution, partial and increasing auditory aphasia supervened.

This case tends to confirm Mill's theory that the centre for numbers is distinct from that for words and letters, as the patient could read and write when making up his accounts, but could not work with figures. Whether the amnesia verbalis present at the outset of the disease was due to partial injury of the auditory centre, or, as appears more probable, to involvement of the commissural fibres between the auditory word centre and the occipital lobe, it is impossible to definitely decide.

The patient was not accustomed to write much, and when doing so he would have to form a mental image of each word, *i.e.*, the stimulus starting in the auditory centre would go to the visual word centre, and from thence the writing centre would be stimulated. The destruction of the visual centre in this case would thus cause the agraphia, which would not have occurred in a more highly educated subject, in whom the stimulus to the writing centre would pass direct from the auditory word centre.—JAMES R. C. GREENLEES.

SURGERY.

The "Fulguration" Treatment of Cancer. By v. Czerny (*Zentralbl. f. Chirurgie*, August, 1908).—Professor von Czerny, in a communication to the German Surgical Society (of which this abstract appears in the *Zentralbl. f. Chirurgie*) tells his experience of the "fulguration" treatment of cancer as seen in the Heidelberg Samaritan Hospital.

In this hospital, where the treatment of cancer is especially studied, four-fifths of the cases admitted are suffering from an advanced stage of cancer, a stage which will not yield satisfactory results with the ordinary methods of treatment.

The technique of the proceeding is carefully described, showing how a Roentgen ray apparatus can be utilised, how brush discharges (Funkenbuschel) from 10 to 20 cm. long can be obtained, and how these are cooled by being passed through a stream of carbon dioxide or compressed air. The electric sparks are allowed to play on the tumour from five to forty minutes, the brush being constantly shifted from one place to another. The patient must be deeply anæsthetised.

The carcimatous tissue having been thus treated is removed by a sharp spoon, the hard edges being cut away by scissors or scalpel, and the electric discharge again applied for about ten minutes.

There is no doubt that this "fulguration" is a powerful method of disorganising cancer cells, but it is extremely difficult to be certain that their vitality and power of proliferation is absolutely destroyed. The other tissues are necessarily destroyed at the same time; thus a great deal of connective tissue is formed with the resulting contraction and deformity of the parts.

The results of 120 "fulgurations" performed in this way (59 subjects) are given. Of these 59 subjects 4 were sarcomata, which also yield to this form of treatment. The results are fairly encouraging, but not very convincing. There does seem, however, to be a place for this method of treament—*e.g.*, in widespread cancer of the skin, in recurrent and inoperative cancer—by doing away with the discomfort of foul discharges, of hæmorrhage, and of pain, and by allowing moderate comfort. Czerny also suggests its use in cases of lupus, tubercular ulcers, &c.

It ought be pointed out that "fulguration" often produces very painful burns around the seat of operation.—ROBERT B. CARSLAW.

A New Method of Sterilisation of the Skin before Operation. By Dr. A. Grossich (*Zentralbl. f. Chirurgie*, October, 1908).—Grossich describes how he was led to try the effect of tincture of iodine on open wounds and surrounding skin, with most satisfactory results. The difficulty of getting union by first intention in casual wounds of the head, neck, armpit, scrotum, finger, &c., is well known, but he found that it was quite sufficient to paint the surface of the wound and the surrounding skin with a solution of iodine, without even washing the parts. He then applied this method to the preparation of the intact skin for operation. He found the following method absolutely satisfactory:—Any hair in the neighbourhood was shaved off "dry;" the skin was then painted with a 10 per cent alcoholic solution of iodine. The wound having been stitched up, was again painted. Although the patients, in the majority of cases, were of the lower class, whose skin was usually very dirty, the results were uniformly satisfactory. At first this method was used only on minor operations--hydroceles, &c.—but he soon came to employ it in major operations as well. It was soon found that the most perfect results (as regards skin healing) were got when no preliminary washing of the skin took place. Grossich tries to explain this by pointing out that the superficial layer of the epidermis (before washing) has in it many intercellular spaces which communicate with the air by microscopic clefts. In these clefts are germs, fat, sweat, &c., but into these clefts the iodine can readily penetrate. On the other hand he holds that the result of a vigorous washing with, say, soap and hot water, is to close up these microscopic clefts (by the swelling of the cells), thus preventing the penetration of the iodine. These facts he has proved microscopically.

On the day preceding the operation the patients are washed with hot water, but this is not repeated on the day of the operation.

In the case of urgent operations—strangulated hernia, &c.—no such preliminary washing takes place, dry shaving and two coats of iodine being sufficient.

At the end of the operation the stitches are painted over. The stitches are taken out on the tenth day in most cases, and within a day or so exfoliation of the thin brown scales of epithelium takes place, leaving normal skin beneath.—ROBERT B. CARSLAW.

Diagnosis of Renal Calculi by Skiagraphy. By Zuckerkandel (*Zentralbl. f. Chirurgie*, August, 1908).—In an abstract of a communication to the German Surgical Society, Zuckerkandel points out that several details regarding the situation of the calculi, their effect on the surrounding kidney tissue, &c., can be made out from a careful study of the shadows on the skiagraph. Stones occupying small cavities correspond almost exactly in shape with these cavities, whereas in larger cavities the stones are often rounded or ovoid, or often (if oxalates) pyriform. Ureteral calculi are usually more or less cylindrical, with the long axis in the direction of the ureter, or cigar-shaped. If the calculi are in the lower half of the pelvis of the kidney they are usually broad above, tapering below, throwing a triangular shadow with one angle directed downwards. In such cases the pelvis is always dilated and the pelvic wall much thickened. An isolated stone in one of the calyces can be diagnosed by its characteristic tapering shape and by its situation near the periphery of the kidney.

Movable calculi, lying free in their cavities, which are met with in large pathologically-formed cavities, in dilated calyces, or in a dilated pelvis, are usually irregular in outline.

Fixed pelvic calculi, or ureteral calculi, are often associated with movable calculi in dilated calyces. The former usually taper towards their lower extremity; the latter are situated in the periphery of the kidney.

The introduction of a metal ureteral bougie before skiagraphy often helps to clear up the exact diagnosis in difficult cases. Small stones often escape observation, and the result of repeated skiagraphy in cases of multiple small calculi often show great diversity in details. A single negative result ought not to justify the assumption that no calculi are present.

The author goes on to speak of operative treatment, condemning nephrotomy as being much more dangerous and less satisfactory than pylotomy, which is much less likely to be followed or accompanied by hæmorrhage and disorganisation of renal tissue by infarction. Nephrotomy is only advisable in cases of an isolated calculus in one of the superior calyces or in cases of large much-branched calculi.

The method of operation naturally varies with each case, and the operator ought to be guided in his treatment by the skiagraphic results. In performing pylotomy the pelvis ought to be incised at the lowest part of its inferior margin. This incision can be enlarged, if necessary, in the direction of the ureter. Partial stitching of the wound in the pelvis, with drainage, ought to be employed.—Robert B. Carslaw.

DISEASES OF THE EYE.

By FREELAND FERGUS, M.D.

Sclerectomy. By Lagrange.—In the November number of the *Archiv. d'Ophthal.*, Lagrange makes quite a good defence of his operation of sclerectomy which has been attacked by Abadie. Abadie's objections are four in number, namely, that after sclerectomy there is no fistula of the eye, for if there were the anterior chamber would be empty. Secondly, that if there were fistula there would be an œdematous bleb under the conjunctiva similar to that which follows subconjunctival injections. Thirdly, that sclerecto-iridectomy will only be proved when it cures patients previously treated and unsuccessfully by ordinary iridectomy. Fourthly, he says that sclerecto-iridectomy is a delicate and dangerous operation to perform.

Lagrange in his reply adheres closely to the view as to the nature of glaucoma enunciated by Leber, Nuel, Ehrlich, and others. He believes in the existence of a fluid current which escapes in the neighbourhood of the canal of Schlemm. His answer to Abadie's first objection is that the fluid, although it escapes from the eyeball, does not escape altogether—it only goes into the subconjunctival tissue—and that, consequently, although the tension is relieved, there is a certain degree of pressure which retains the iris in its place. In the second place, he says that the bleb really exists, and that he himself and others have shown it in patients exhibited at the Ophthalmological Society of Paris. As an answer to his third objection, Lagrange quotes several cases which had been operated on by iridectomy without success, but which gave good results with sclerectomy. The objection that it is difficult of performance is denied by its author.

It certainly cannot be much more dangerous than the ordinary operation of iridectomy when performed with the ordinary keratome. We venture to think that almost everyone who has had much experience of glaucoma operations has sometimes damaged a lens with the point of a keratome in making an iridectomy for glaucoma. No doubt the risk is much minimised when the ordinary Graefe's knife is used, as it always ought to be, but still, making all allowance, no one can deny that iridectomy for glaucoma is not altogether free from risk.

As the details of Lagrange's operation are not well known we deem it well to quote his own description from the August number of the *Archiv. d'Ophthal.* He says:—"I incise the sclerotic as far as I can from the cornea, while still keeping well within the anterior chamber; that is to say, I pass the knife in front of the iris, but as near as possible to it; in this first stage it is not necessary to cut a large flap, an incision of 4 milimetres suffices. After the puncture and counter-puncture is made the fine von Graefe's knife cuts the tendon of the ciliary muscle, divides it, and opens freely the choroidal spaces, which thus are placed in communication with the anterior chamber. The sclerotic is then cut, and finally the incision ends by making a large conjunctival flap. The conjunctival flap is lifted with small forceps, the wound gapes, and its anterior border is drawn forwards, and (with a pair of scissors) a piece of the sclerotic is removed. Finally, the conjunctival flap is replaced so as to cover and protect the opening through the sclerotic."

The Muscles of the Eye. By Howe.—Although this book has not been sent to the *Glasgow Medical Journal* for review, still we think it right to call the attention of all the readers of the *Journal* to the second volume of this extremely interesting book which has just appeared. Many ophthalmic surgeons, who have not particulafly studied the matter, say that "they are all muscle mad in America," but the volume under consideration goes far to show that there is method in their madness. To talk of muscular treatment curing all cases of epilepsy is, of course, sheer nonsense; but, unquestionably, there are many conditions, especially neurasthenic, that for cure depend upon careful muscular treatment. It will, I daresay, surprise many readers to hear that two large volumes can be written on such a subject as eye muscles, but they are none too elaborate to give a succinct account of most that is known on this important subject. The three functions which chiefly come in for consideration are those of accommodation, convergence, and torsion. In days gone by, before accurate methods of testing convergence and torsion had come into vogue, patients whose symptoms were not relieved by careful correction of refraction errors were generally said to suffer from retinal asthenopia. We don't know if there are still surgeons who believe in retinal asthenopia, but it seems to us that the more the physical conditions are specially studied, the more the number of such cases will diminish and probably vanish altogether. Volumes such as these are a standing protest against the modern idea that anyone with a few months' very imperfect training is capable for the work of an ophthalmic surgeon. There is no branch of the healing art which requires so long and so careful a training. A medical graduate who undertakes ophthalmic work ought to have a thorough training in the physical and physiological laboratories; if he have not he will be about as well equipped for the work of an ophthalmic surgeon as an electric engineer is for the profession of civil engineering.

DISEASES OF THE THROAT.

Direct Illumination of the Respiratory Tract.—From time to time in this *Journal* attention has been drawn to the great advances which have been made in the direct illumination of the whole upper respiratory tract and œsophagus. Sufficient recognition has not been made of the principle described as far back as 1879 by Reichert. This writer stated, "Pressure upon the base of the tongue and the median glosso-epiglottic ligament produces an elevation of the epiglottis on account of its close attachment to the tongue." Autoscopy must depend in general on the principle enunciated by Reichert, a principle which is already involved in the necessary instrumental depression of the base of the tongue.

Kirstein carried the method a step further by showing how he could directly examine the larynx. These steps led Killian to explore the trachea and some of the bronchial tubes, while Mikulicz applied the same methods of direct illumination to the œsophagus.

During the past year abundant evidence is given in literature of the hold which these new methods have taken upon the profession. The editor of the *Lancet* for 7th November, 1908, commenting upon an address given by the writer of these abstracts at the opening of the winter session of the Central London Throat and Ear Hospital, says, "Dr. Macintyre was careful to insist that such examinations (x-rays) were complementary to the examination of the nose, throat, trachea, and bronchial tubes by direct vision, which has been developed during the last twelve years, following on the work of Reichert, by observers such as Kirstein, Killian, Chevalier Jackson, Brünings, and Dr. Macintyre himself. Laryngoscopy, again, owes to the physicist the incandescent electric lamps, without which the modern method of direct inspection of the air-passages would not be possible, and the methods of diagnosis by transillumination were not available until that source of light was obtainable in a convenient form. Dr. Macintyre pointed out that the direct inspection of the respiratory tract has introduced a new era in laryngology, and is comparable to Garcia's ever-memorable discovery that laid the first foundation of its scientific study. There can be no question of the justice of the Glasgow teacher's claim. The evolution of the methods now in use in his art, although it has advanced rapidly, has done so in well-defined steps."

One of the most important things recorded of late in connection with these developments is the improvement in technique. Killian's instruments were exceedingly good, but Dr. Brünings's have made the actual examination of the parts much simpler and less complicated. All surgeons are indebted to him for his great improvements.—John Macintyre.

X-rays in Examination of the Nose and Throat.—The position of x-rays in relation to the diseases of the upper respiratory tract and œsophagus has of course long been established, and it is well known that, quite apart from the subject of foreign bodies, most surgeons and physicians engaged in this special department find it necessary frequently to examine the chest, neck, and face with a view to completing the diagnosis. While transillumination of the antrum of Highmore is generally credited with being of great advantage in determining when we should operate in diseases of the maxillary sinus, the same view cannot yet be held with regard to operations in the region of the frontal sinuses.

Dr. Joseph Beck, in the *Journal of the American Medical Association* of 8th August, 1908, shows how the x-rays may be of value in showing the exact outline of the frontal sinuses. By this means he is able beforehand to make a celluloid tracing, to be used at the operation, and which covers the frontal sinuses below it. After removing the flap of the skin upwards, the outline of the sinuses is traced on the periosteum, and with a chisel the covering of the bone and the bone itself are divided. In this way he is able, while drawing the skin upwards, to turn the bony portion downwards and give free access to the sinuses. Everything is replaced after the operation and the method prevents any deformity.

The subject of x-rays in laryngology is extensively dealt with by Professor Dr. H. Burger, of Amsterdam, in his work *Was leisten die Rontgenstrahlen in der Rhino-Laryngologie?* published by J. F. Bergmann, Wiesbaden, this year (1908).—John Macintyre.

Submucous Resection of the Nasal Septum.—In the *Journal of Laryngology, Rhinology, and Otology* for December, 1908, a letter appears from Dr. Freer, of Chicago, in which he points out that much of the credit due to him has been obscured by the name of Killian, who has also done great work in this department.

There can be no doubt that there is justice in Dr. Freer's claim, that there has been a tendency in this country to quote the name of Killian more frequently than Freer, and it is only fair to say that the work of the latter, which was quite independent of Killian and which was published before his, should be fully recognised. There can also be no doubt he is quite right in saying—"That as soon as his work was known many of his own countrymen adopted it." Probably the truth lies in the statement that there is room for both methods, and Dr. Freer indicates this in the last sentence of his letter, when he states that he expects, for a long time at least, operators will only make use of his more difficult procedure for children and extreme or cicatrical deviations (*Journal of Laryngology, Rhinology, and Otology*, November, 1908).

The main point is the advantage which Freer's incision gives by way of giving a good view of the hard structures below the mucous membrane of the septum during the whole course of operation. Dr. Freer maintains that his method gives the fullest view of the structures, even when we have to pass back to the posterior border of the vomer, and he has recently published a detailed description of his flap-method of submucous resection of the nasal septum in the *Journal of Ophthalmology and Oto-Laryngology*, Chicago.

—John Macintyre.

Books, Pamphlets, &c., Received.

Mind and its Disorders, a Text-book for Students and Practitioners, by W. H. B. Stoddart, M.D., F.R.C.P. With illustrations. London: H. K. Lewis. 1908. (12s. 6d. net.)

Essentials of Sanitary Science, by Gilbert E. Brooke, M.A.Cantab., L.R.C.P. Edin., D.P.H. London: Henry Kimpton. 1909. (6s. net.)

Reports of the Society for the Study of Disease in Children. Vol. VIII (Session 1907-1908). Editor: George Carpenter, M.D. London: J. & A. Churchill. 1908. (12s. 6d. net.)

Pathogenic Micro-organisms, including Bacteria and Protozoa, a Practical Manual for Students, Physicians, and Health Officers, by William Hallock Park, M.D., assisted by Anna W. Williams, M.D. Third edition, enlarged and thoroughly revised. With 176 engravings and 5 full-page plates. London: Henry Kimpton. 1908. (18s. net.)

Our Teeth: How Built up, How Destroyed, How Preserved, described and illustrated by R. Denison Pedley, F.R.C.S.Ed., L.D.S.Eng., and Frank Harrison, M.R.C.S.Eng., L.D.S.Eng. London: Blackie & Son. 1908. (5s. net.)

Hints to Ships' Surgeons, by J. F. Elliott, L.R.C.S., L.R.C.P.Irel. London: John Bale, Sons & Danielsson, Ltd. 1908. (2s. net.)

The Chemical Constitution of the Proteins, by R. H. Aders Plimmer, D.Sc. In Two Parts. Part I, 3s. net; Part II, 2s. 6d. net. London: Longmans, Green & Co.

Infected Ears (Intrameatal Treatment), by F. Faulder White, F.R.C.S.Eng. London: Yellon & Mansfield. 1908. (5s. net.)

Lectures on the Pathology of Cancer, by Charles Powell White, M.A., M.D., F.R.C.S. Manchester: Sherratt & Hughes. 1908. (3s. 6d. net.)

Transactions of the American Proctologic Society (Tenth Annual Meeting). Chicago. 1908.

A Practical Text-book on Infectious Diseases, by R. W. Marsden, M.D., M.R.C.P., with a Chapter on Puerperal Septic Disease by A. Knyvett Gordon, M.A., M.B. Manchester: Sherratt & Hughes. 1908. (5s. net.)

GLASGOW.—METEOROLOGICAL AND VITAL STATISTICS FOR THE FOUR WEEKS ENDING 19th DECEMBER, 1908.

	Week ending			
	Nov. 28.	Dec. 5.	Dec. 12.	Dec. 19.
Mean temperature, . .	46·7°	44·2°	41·2°	41·8°
Mean range of temperature between day and night, .	15·0°	18·2°	18·5°	16·5°
Number of days on which rain fell, ...	7	4	6	6
Amount of rainfall, . ins.	1·48	0·59	0·74	0·62
Deaths registered, . . .	270	281	265	267
Death-rates, ...	16·4	17·1	16·1	16·2
Zymotic death-rates, . .	1·1	1·1	1·4	1·8
Pulmonary death-rates, .	5·7	5·2	4·2	3·9
Deaths—				
Under 1 year, ...	49	49	49	53
60 years and upwards, .	69	62	60	66
Deaths from—				
Small-pox, ...	...	...	...	...
Measles, ...	...	4	...	...
Scarlet fever, ...	2	3	3	1
Diphtheria, ...	3	4	5	6
Whooping-cough, . .	11	8	12	20
Fever, ...	1	...	1	...
Cerebro-spinal fever, . .	1	1	2	5
Diarrhœa, ...	12	12	12	10
Croup and laryngitis, .	1	...	3	...
Bronchitis, pneumonia, and pleurisy, ...	68	62	53	48
Cases reported—				
Small-pox, ...	...	...	...	...
Cerebro-spinal meningitis, .	4	5	4	4
Diphtheria and membranous croup, ...	39	40	40	49
Erysipelas, ...	23	27	21	19
Scarlet fever, ...	75	59	85	77
Typhus fever, ...	...	1	...	...
Enteric fever, ...	9	7	7	8
Continued fever, . . .	...	3	...	1
Puerperal fever, . . .	1	4	2	4
Measles,*	24	39	31	34

* Measles not notifiable.

Sanitary Chambers,
Glasgow, *23rd December, 1908.*

THE

GLASGOW MEDICAL JOURNAL.

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ORIGINAL ARTICLES.

A SHORT NOTE ON "VERRUGA PERUANA."[1]

By JAMES W. ALLAN, M.B., C.M.

My interest in "verruga" was first awakened by reading about the disease in Von Tschudi's *Travels in Peru.*[2] He says (p. 263, *et seq.*):—

"In several of the valleys on the road from the coast to the Sierra, and, above all, in the valley of Surco, there are certain springs the water of which the Indians never drink. When a stranger unguardedly approaches one of these springs for the purpose of quenching his thirst, he is saluted by warning cries of *Es agua de veruga!* (It is veruga water!) Even horses and mules are not suffered to refresh themselves at these springs, where the water is supposed to have the effect of producing a disorder called the verugas. As the existence of this disease is not known in any other country, there appears ground for believing that it has its origin in certain local circumstances. The verugas first manifests itself by sore throat, pains in the bones, and other feverish symptoms. In the course of a few days an eruption of red-coloured pimples, or boils, appears. These pimples sometimes increase in magnitude till, in some parts of the body, they become nearly as large as an egg, and blood flows from them to such an excess that the strength of the patient is exhausted, and consumption frequently follows. From the small verugas the flow of blood is greatest. I knew an instance of a half-caste Indian who, from a small veruga below the ankle, lost two pounds of blood.

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[1] Read before the Glasgow Northern Medical Society on 5th January, 1909.

[2] *Travels in Peru during the years 1838-1842.* By Dr. J. J. von Tschudi. Translated from the German by Thomasina Ross. London: David Bogue. 1847.

"I was not able to trace this disease to any other cause than that which the Indians assign to it. At all events, it is certain that travellers who abstain from drinking the water of the condemned springs escape the verugas, whilst those who only once taste such water are attacked by the disorder. It is the same with mules and horses. One of my mules which drank veruga water was attacked by a large tumour on the leg. . . .

"The medical treatment of the verugas by the Indians is quite empirical. They administer to the patient the infusion of a plant which they call *huajra-huajra*—that is, horn-horn. I never witnessed any convincing proof of its efficacy. Its operation appears to be merely sudorific. A preparation of white maize is also frequently given, and it has the effect of assisting the action of the skin. When the eruption of the verugas is tardy, a few spoonfuls of wine are found to be of great service. Sudorific and purifying medicines, together with cutting out the large verugas, and keeping the wounds for a time in a state of suppuration, has heretofore been found the best mode of treatment. An accurate chemical analysis of the water, which the Indians declare to be *aqua de veruga*, would be very desirable.

". . . . Probably in no country in the world do so many local diseases prevail as in Peru. Every valley has its own peculiar disease, which frequently does not extend beyond the boundary of a few square miles, and is quite unknown in neighbouring districts. The origin of these disorders is, doubtless, to be traced to certain mineral or vegetable influences as yet unknown. It is remarkable how unequally these baneful visitations affect the different races of the inhabitants. The Indians and the lighter classes of half-castes are most frequently attacked by the verugas, the whites are less liable to the disease, whilst the negroes and people of the darker shades of mixed blood seldom suffer from it."

A little farther on he says:—"San Geronimo de Surco is infested with swarms of annoying insects, especially sancudos (*Culex molestus*, Koll) and stinging flies (species of *Simoleum*), which banish sleep from the resting-place of the weary traveller."

Von Tschudi does not seem to connect these insects with the etiology of verruga. His suspicions are centred on water as the medium which conveys the disease.

Let us now turn for a moment to the *Tropical Diseases* of Sir Patrick Manson, and hear what he has to say on the subject.

"In certain narrow valleys of the Andes, between the ninth and sixteenth parallels of south latitude," says Sir Patrick, "and at an elevation of from 3,000 to 10,000 feet, an aggravated form of disease, in some respects closely resembling yaws, and locally known as 'verruga,' is endemic.

"The geographical distribution of verruga, so far as known, is singularly limited; it is confined to certain valleys, the inhabitants of neighbouring places being exempt. It is said that the disease may be acquired in merely passing through the endemic districts, and that, unlike yaws, the domestic animals in these districts, as well as the human inhabitants, are subject to the disease.

"It has been suggested that the disease of which Carrion died was a septicæmia; that Oroya fever is typhoid, to which yaws is superadded; that verruga is an expression of some form of helminthiasis, of trypanosomiasis, of spirillosis. Until the germ has been definitely recognised, the exact nature of this disease cannot be determined.

"*Symptoms.*—The peculiar initial rheumatic-like pains and fever are apparently the same in character as those of yaws, only more severe. Just as in yaws, one attack of verruga confers practical immunity. The constitutional symptoms likewise subside on the appearance of the skin lesion, which, judging by the published descriptions, is a granuloma macroscopically and microscopically identical with that of yaws. Just as in the latter disease, the eruption may be sparse or abundant, discrete or confluent. As in yaws, individual granulomata may fail to erupt; others may subside rapidly; others, again, may continue to increase, and then, after remaining stationary for a time, gradually wither, shrink, and drop off without leaving a scar. If difference there be in their clinical features between verruga and yaws, apparently it is more one of degree than of kind.

"In verruga the initial fever may continue for weeks, or even for months. It is very severe in many instances. Often it exhibits features like those of a malarial infection, including intermittency, profound anæmia, and sometimes enlargement of the spleen and liver. Very probably in such cases it is the outcome of a compound infection—verruga attacking a malarial subject. Not unfrequently in the endemic district a certain type of fever, believed to be verruga fever, proves fatal before the appearance of definite skin manifestations such as would justify a positive diagnosis. This was apparently the case with a medical student, named Carrion, who inoculated himself with blood from a verruga granuloma. The symptoms in his case closely resembled those of the very deadly fever referred to, which is known locally as Oroya fever.

"In addition to the severity of the fever and rheumatic pains, the Peruvian disease is remarkable for the tendency to spontaneous hæmorrhage exhibited by the skin lesions. Apparently this peculiarity is attributable, like the hæmorrhages in the affection known as 'mountain fever,' to the diminished atmospheric pressure at great altitudes: for when the patient descends to the lower valleys, or to the sea level, the tendency to bleeding ceases. Possibly the unusual vascularity of the swellings, which are sometimes permeated by a network of cavernous sinuses, also arises from the same circumstance.

"In yaws we find no mention made of the occurrence of fungating granulomata in any situation but the skin. In verruga it would seem that the tumours may develop on mucous surfaces—in the œsophagus, the stomach, intestine, bladder, uterus, and vagina. Hence the dysphagia—a common symptom—and the occasional occurrence of hæmatemesis, melæna, hæmaturia, and bleeding from the vagina in the last-named disease.

"*Treatment.*—It appears that cold tends to repress the development of the eruption, and that until this appears fever and pain persist. For this reason, as well as to avoid the hæmorrhage from the lesions when they do erupt, the patients should quit the heights and descend to near the sea level. External hæmorrhages, when they do occur, must be treated by graduated pressure: otherwise, the local as well as the general treatment is the same as for yaws."

From the foregoing it is evident that Sir Patrick Manson is strongly inclined to identify verruga with yaws.

A little personal experience, which I had on a recent voyage to South America, quickened my interest in verruga.

While the P.S.N.C. Steamer "Lima" was lying at Callao-Peru, I visited the Hospital de Guadalupe there, in connection with the ship's medical business, on 12th September, 1908. And there, thanks to the courtesy of Dr. Barton, surgeon of the hospital, I saw two cases of verruga. They were mild cases. It was a gratification to see a disease of which I had read, and to which so much interest attaches. In conversation, Dr. Barton gave me to understand that he did not think that verruga and yaws were the same disease, and that he rejected the water theory of infection. He spoke of a "fly"; but I did not gather any particulars, as the matter was discussed at the end of my visit, as I was leaving the hospital. I may mention, however, that Dr. Barton is working at the subject, and we may hope soon to have the results of his investigations, which will, no doubt, throw light on the true etiology of verruga Peruana.

On the homeward voyage, I discovered that a lad, who had been taken on board, and who assisted me at the dressing of a patient who was being conveyed to England, had passed through an attack of verruga. I questioned him regarding the history of his illness, and took down the following notes:—

"T. A. D., a native of New Zealand, has been out in Peru three years in January coming. He has been in the Amazon basin, in Bolivia, in Puno, and Arrequipa. . . . In the Amazon basin he had chills—'tasiana.'

"He went up from Callao to a place called Chisoque—about 40 miles from Lima—about 1,200 feet, he thinks, above sea level, and he was engaged there in the building of a (small) railway bridge. After being about a month there, he started to take chills every day at 10 o'clock. They were like the chills he had in the Amazon basin. He had great thirst, and drank a lot of water. Could not eat. If he could have kept from drinking water, the chills would have gone away sooner. All the men who were working at the bridge drank water from a spring. The water was beautiful, and clear, and cold, coming up out of the ground. They could have got other water, but they liked to drink the water from the spring. It seemed perfectly pure—could taste nothing wrong with it. But there was no doubt there was mineral in it—the foreman could not develop photographs with it. The 'prospector,' he proposed to test the water by putting a piece of iron in it. The iron was left in it from 6 at night to 6 in the morning —12 hours. It was found coated green.

"After being at Chisoque for two months, he left it on account of the chills, and went to the hospital in Callao

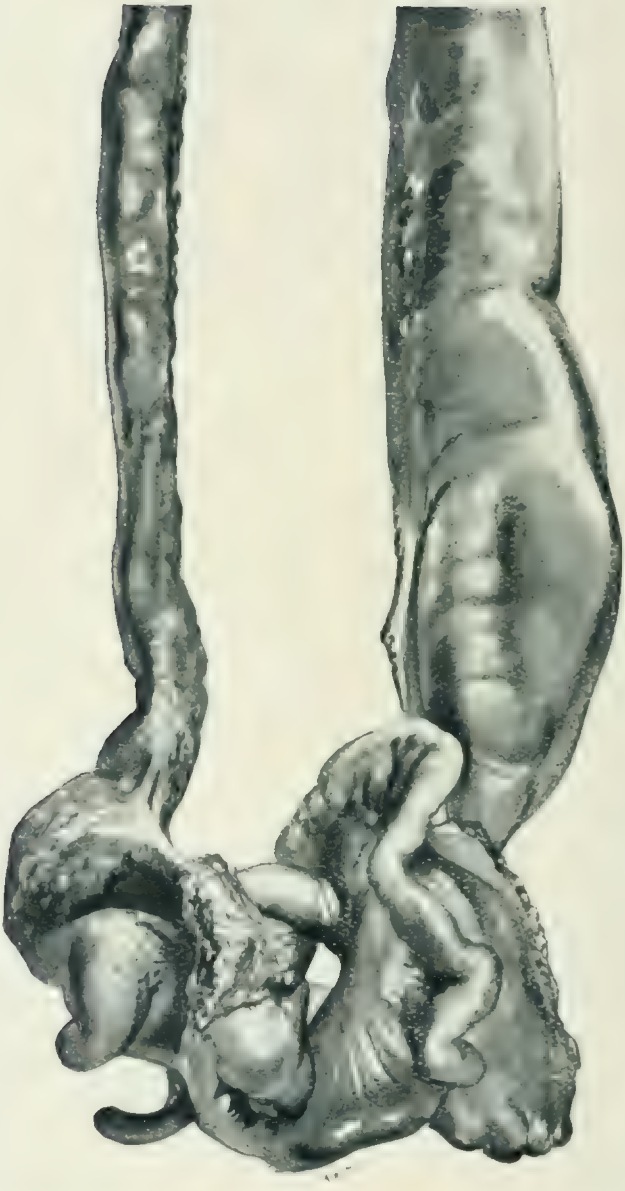
(Guadalupe Hospital). There he was seized with pains in the feet—all over, in fact. He started to break out then—in globules—red. He burst one, and there was only blood in it. Besides the globes there were big lumps. Neither the globules nor the lumps were painful to any extent. The globules were itchy. The lumps never came to a head—came out and went in again. The more the globules came out, the greater the stiffness in the wrists and legs. All the men who were working on the bridge took verruga. Four of them died, six went back to the States, and he heard that four of them took it in the States. None of them had bleeding—only a scab formed on the top. A big lump would go down and disappear—say, in the course of two weeks for a big lump.

"There were mosquitoes at Chisoque—and flies—about the size of a house-fly, with yellow stripes and like a wasp. But they did not sting—they bit.

"[This seems to have been a case of verruga in a malarial subject. The chills in the Amazon basin may be accepted as malaria. And the similar chills which occurred at Chisoque—every day at 10 o'clock—also look like malaria. No doubt he was at Chisoque about a month when these chills started, and the question might be raised as to whether the verruga was then at work in his system, and might be giving rise to 'chills.' But, on the whole, it looks like a return of the malaria, (?) a fresh infection, or (?) a recrudesence due to the influence of the encroaching verruga]."

These notes were taken on board the "Lima" on 11th November, 1908. They may be rather crude, but I think it best to leave them as they were taken down.

Although verruga seems to be confined to Peru, I think the subject possesses sufficient general interest to justify me in bringing it before the Society.



Intestinal Obstruction in the Newborn : Strangulation through a hole in the Mesentery.

The plate shows :—

1. Great distension of the small intestine above the obstruction, with complete emptiness and contraction below it.

2. Extreme contraction and emptiness of the entire colon.

3. Gangrene and destruction of a loop of ileum near its lower end, the loop having passed through an opening in the mesentery close to the cæcum. The strangulated loop of ileum was about 2 inches long, the empty portion of ileum below about 4 to 5 inches long.

INTESTINAL OBSTRUCTION IN THE NEWBORN: STRANGULATION THROUGH A HOLE IN THE MESENTERY.

By HENRY RUTHERFURD, M.B., C.M, F.F.P.S.G.,
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A female child, about 2½ days old, was brought to the Royal Hospital for Sick Children on 9th February last, with what was plainly complete obstruction of the bowels. Vomiting occurred when the child was being washed immediately after birth, was very frequent during the next twelve hours, and had been repeated every few hours since. Nothing had been passed *per anum*, and the abdomen was distended, showing peristaltic waves travelling from above downwards towards the cæcum.

A finger passed into the rectum found no obstruction, and accordingly, chloroform having been given, the abdomen was opened in the left iliac region. Here nothing but a finely contracted cord could be found to represent the sigmoid flexure, so this wound was closed and a second incision made on the right side. The wound was made carefully, but immediately on getting through the wall there was a gush of meconium, evidently from a distended loop that had been scratched. I supposed at the time that this was likely to be cæcum, but the attenuated walls of the viscus could not be brought into view without more disturbance of parts than seemed desirable, and two small tubes were introduced and fixed by sutures. For the next twelve days the child did admirably, had no sickness, and passed yellow intestinal contents by the wound.

On the 21st February it was noted that there was nothing coming away from the fistula, there was some vomiting, and distension reappeared. That day another incision was made nearer the middle line; coils of small intestine were seen only moderately distended: no further clue to the site of obstruction was obtained. The child died the following day.

The house surgeon, Dr. H. Christie, kindly removed the intestines, and on examining them it was seen that a loop of ileum near the lower end had passed through an opening in the mesentery close to the cæcum, had there become strangulated, and partly sloughed away. There did not seem to have been any general peritonitis; adhesions round about the damaged loop required careful separation. They had been of service while the child survived.

It seems probable that the recurrence of symptoms coincided with the passage of a little more of the intestine through the mesenteric aperture, the part originally involved corresponding to the portion which sloughed, the part which followed having merely been constricted.

The condition of the parts is well shown in the accompanying drawing by Mr. A. K. Maxwell.

Excluding cases of imperforate anus and atresia, which, while sometimes only to be dealt with by abdominal section, are at all events comparatively easy of recognition, congenital obstruction still presents a great variety in its causes and anatomical distribution. Wilms (*Der Ileus*, p. 139) says—"Stenoses and atresiæ have been found in the duodenum, jejunum, ileum, and colon, most frequently in the jejunum and ileum."

The occurrence of stenosis, atresia, and complete defects in continuity in the duodenum and in the lower part of the ileum, while suggesting a relationship to the development of liver and pancreas in the former, and the development and atrophy of the vitelline duct in the latter, still leaves a considerable number of cases—those, namely, concerning the jejunum and colon—to be otherwise accounted for.

"In the complicated development of the intestine, and as a result of the change in position of the colon, injuries easily occur which lead to defects of the bowel or to complete occlusion, more rarely to stenosis" (Wilms, p. 138).

To this must be added fœtal peritonitis from other causes, with the formation of adhesions and bands.

Congenital obstruction from the condition which I have described does not seem to have been previously observed, but its obstruction from the same cause in the adult has, and the condition which makes it possible at any age fully described.

The late Professor Joseph Coats, writing in 1883 in his *Manual of Pathology*, says—"A very unusual form of incarceration is that in which there is an aperture in the mesentery through which the intestine passes. This may be produced by a tear in the mesentery, but in a case observed by the author there was a large round gap, about 5 inches in diameter, with rounded edges, and obviously of long standing, perhaps congenital. The greater part of the small intestine had become impacted in a complicated fashion into the aperture, and obstruction had finally resulted."

Treves, in his *Hunterian Lectures* (1885), has shown in convincing manner the congenital and developmental origin of the typical hole in the mesentery, which is near the terminal part of the ileum and close to the bowel. In his work on *Intestinal Obstruction* (second edition, 1899), after quoting at length two cases obviously of traumatic origin, at intervals after the recorded injuries of one to three years (Cameron, Maylard), he proceeds to point out that in other examples "there is practically no doubt but that the abnormal aperture is congenital. The edges are smooth, rounded, and regular; there is no history of injury, and no trace of any previous peritonitis. The hole is found in the mesentery of the terminal part of the ileum, and is close to the bowel. . . . The hole is generally circumscribed by an anastomosis between the ileo-colic branch of the superior mesenteric artery and the last of the intestinal arteries. . . . I have frequently found this particular spot in the mesentery of the fœtus marked by an area of peritoneum which is entirely devoid of fat, of glands, and of blood-vessels."

He further describes a similar condition found in the body of an adult, where the sharply defined atrophic patch was cribriform, and might easily have been converted into a mesenteric hole.

Wilms, of Leipsig ("Der Ileus," *Deutsche Chirurgie*, 1906), says—"All broad, flat-shaped structures within the abdomen, such as the mesentery, mesocolon, omentum, broad ligaments of the uterus, may present apertures, congenital or acquired, in which loops of small intestine may become constricted."

Acquired openings he refers to three causes—(1) Abdominal injuries by direct violence; (2) inflammation followed by contraction and dragging; (3) operations such as intestinal resection or removal of tumour from the mesentery.

But, he proceeds, "the greater number of the openings in the mesentery and mesocolon . . . are to be regarded as malformations or congenital defects. In support of which view are—(1) the absence of inflammatory changes in the neighbourhood of the holes; (2) their more frequent occurrence in certain definite regions; and, finally, the absence in the history of injuries and diseases of the kind already referred to."

Besides the area in the mesentery described by Treves, Wilms quotes Loebl (*Zeitsch. d. K.K. Gesellsch. d. Aerzte z. Wien*, 1844) as having explained the existence of an opening in the mesocolon on similar grounds. It is referred to as being between the two arteries to the transverse colon. This may mean between the two main branches of the middle colic, or more likely between the middle and left colics, an area known to surgeons in connection with the operation of posterior gastro-enterostomy.

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CEREBRAL PHYSIOLOGY AND THE EDUCATION OF ABNORMAL CHILDREN.

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It is part of the working theory of every physician and surgeon that in all but the very young—all, say, who are older than 6 months—the surface of the brain has by education become functionally differentiated into specialised centres, which govern the outlying parts of the body, whether these be sensory, such as the eye and ear, or motor, such as the muscles of the limbs.

At first the movements in a very young child are reflex merely: they are not governed by any experience, and they are not directed by anything which we recognise as will.

Education, which begins as soon as the child is born, sets apart certain areas of the surface—hence called cortical centres—to preside over the exercise of special functions.

But whilst education is necessary for the development of this presiding power in the surface of the brain, it has to proceed within rigidly fixed lines, governed by heredity and anatomical connection, and hence we always find the same small area of the brain presiding over the same set of functions. We do not find in one case an area of the surface controlling the movements of the arm, and in another case the corresponding area governing the sense of sight, or the movements of the leg.

Now, the two great sciences which have developed our knowledge of cerebral localisation are experimental physiology and clinical pathology. By experiments on animals it is possible to map out those portions of the surface of the brain which have become specialised for the government of individual sensory and motor functions: and by comparing the symptoms of disease during life with the evidences of disease found after death, a set of conclusions is arrived at which tallies pretty exactly with the results of experimental physiology.

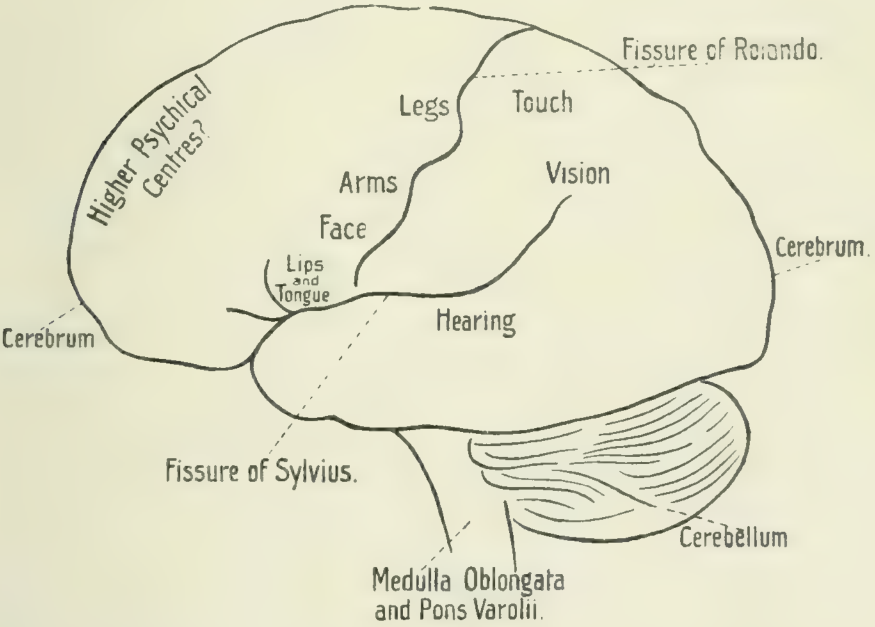

Fig. 1.

Map of the surface of the brain, showing approximately the various centres or specialised areas.

The accompanying map of the surface of the brain shows approximately the principal centres or specialised areas (Fig. 1).

(At one time these cortical centres were regarded as accurately mapped areas, separated by almost linear margins. More recent research points to them rather as areas within which the special sense indicated is most active: and in normal children with the usual stimuli operating through the usual channels—the eye, the ear, the organs of taste, touch, and smell—the differentiation of the cortex is so uniform that almost no variation in the areas occurs. What may occur in abnormal children will be noticed later.)

The cortical centres of the brain not only receive impressions from without, but store away past impressions, and thus become memory centres. Whether this takes place within the special centre itself or in some associated part of the brain does not matter for the purpose of the present argument.

It will be found convenient for the purposes of this paper to divide the language centres shown in Fig 2 into *language appreciating centres* (the auditory, the visual, and the touch centres), and the *language producing centres* (the speech centre, and the group used in writing, in spelling the manual alphabet, and in producing gestures and signs—W.M.C. in the the figure). The latter are usually regarded as motor centres (Ferrier and others). Sometimes they, like the language appreciating centres, are regarded as true sensory centres, like those for hearing, sight, and touch (Bastian and others), with associated motor centres in the medulla and spinal cord lower down. So long, however, as the double function of receiving and storing impressions is associated with each, the difference above indicated may be neglected so far as the arguments here used are concerned.

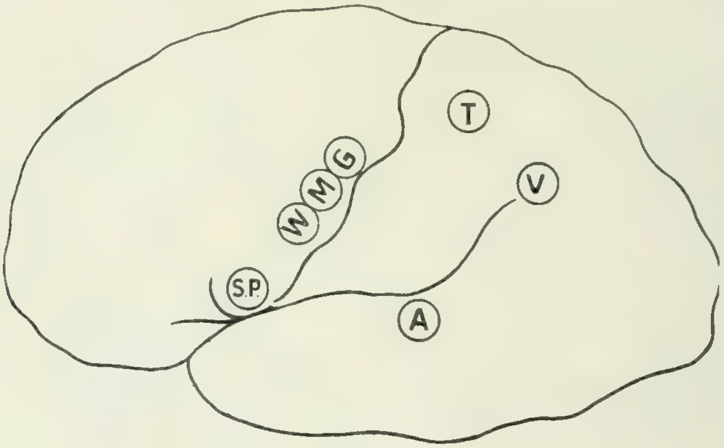

FIG. 2.

Centres concerned in the appreciation and production of language. A, auditory centre; Sp., speech centre; V, visual centre; W.M.G., writing, manual alphabet, and gesture language centres; T, touch centre. (The group WMG represent Bastian's cheiro-kinæsthetic centre; Sp, the glosso-kinæsthetic centre.)

In studying cerebral localisation in connection with education, it is important to consider the history of the probable rise of these centres in the development of the race, and then the known order of their rise in the development of the individual. Lastly, when one or more of these centres is destroyed, we shall see what alterations are made in the cerebral arrangements.

In animals the brain arrangements are much simpler than in man.

It is true that in some animals special parts of the brain are more highly developed than in man—for instance, that which governs the sense of smell in dogs. But the cerebral hemispheres are always smaller and less convoluted than in man; and, as we ascend in the scale, the higher animals show arrangements which closely resemble those of man. Thus, in the monkey the convolutions are more numerous, the cerebral hemispheres greater in bulk than in the rabbit or the pigeon. They still fall greatly short of those in man, though the great fissures and divisions of the surface of the brain clearly foreshadow what is to come in the human species. And it may be put down as a general principle that the amount of intelligence displayed by an animal is in direct proportion to the size which the cerebral hemispheres bear to the rest of the brain (Figs. 1 and 3).

The young child is born with all the potentialities of the adult brain. Every convolution and groove is present at birth, and only awaits education to develop the power latent in each. In studying the rise of the specialised centres in the history of the human race, we may exclude from present consideration those which are possessed in common by animals and man, such as sight, hearing, the centres for moving the arms and legs, those for taste and smell, and the centre for touch. Having done so, we find that, from the educational point of view, the chief difference between animals and man is the power of speech possessed by the latter. I am not denying to animals the possession of language, but speech and its recently acquired form of expression, written language, are possessed by none but man.

In the normal child the acquisition of language is the acquisition of speech. A purely sign stage is a very temporary one, and before he learns writing the child's vocabulary is complete for all the ordinary purposes of life. He learns speech by imitation. He produces more or less accurately the sounds which he has heard others produce, and these he modifies by movements of the lips and tongue similar to those he has seen others perform. After many attempts he speaks so that others understand what he means.

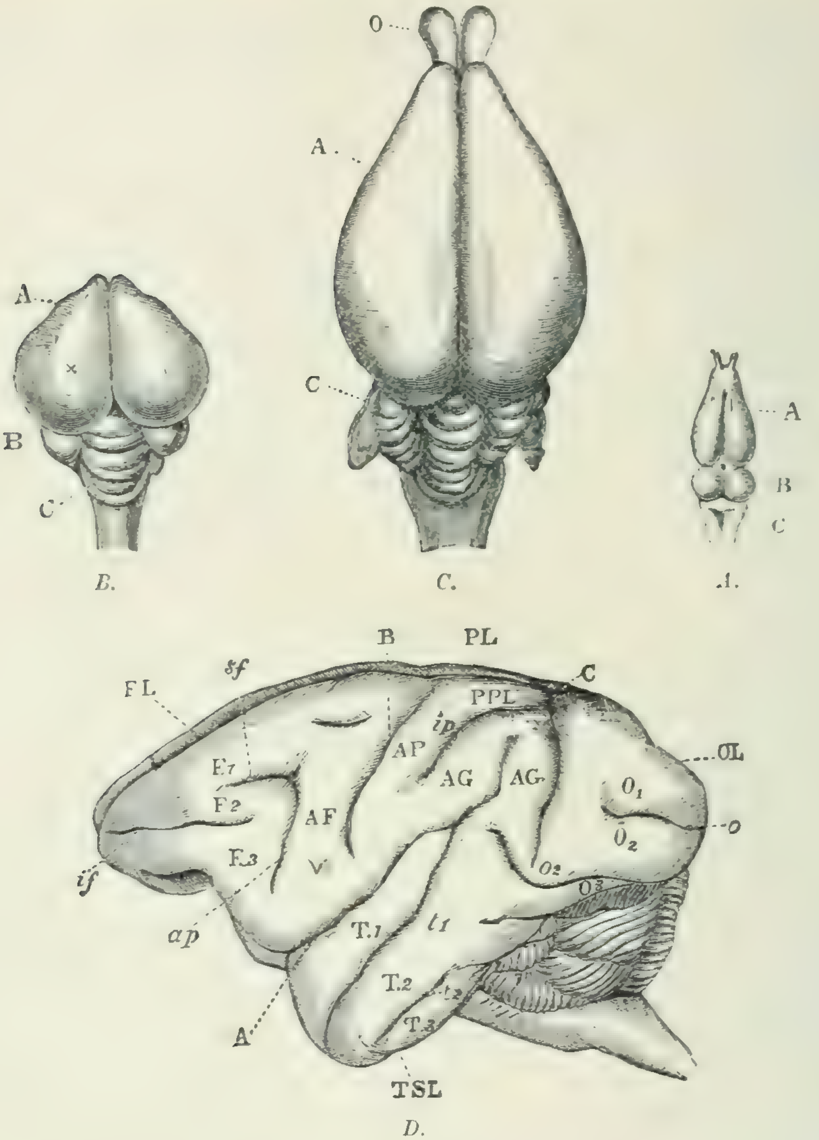

Fig. 3 (from Ferrier).

A.—Brain of frog. A, cerebral hemispheres; B, optic lobes; C, cerebellum.

B.—Brain of the pigeon. A, cerebral hemispheres; B, optic lobes; C, cerebellum.

C.—Brain of the rabbit. A, the smooth cerebral hemispheres; O, the olfactory bulbs; C, the cerebellum.

D.—Left hemisphere of the brain of the monkey (Macaque). A, the fissure of Sylvius; B, the fissure of Rolando; C, the parieto-occipital fissure; FL, the frontal lobe; PL, the parietal lobe; OL, the occipital lobe; TSL, the temporo-sphenoidal lobe; F1, the superior frontal convolution; F2, the middle frontal convolution; F3, the inferior frontal convolution; *sf*, the supero-frontal sulcus; *if*, the infero-frontal sulcus; *ap*, the antero-parietal sulcus; AF, the ascending frontal convolution; AP, the ascending parietal convolution; PPL, the postero-parietal lobule; AG, the angular gyrus; *ip*, the intra-parietal sulcus; T1, T2, T3, the superior, middle, and inferior temporo-sphenoidal convolutions; *t1*, *t2*, the superior and inferior temporo-sphenoidal sulci; O1, O2, and O3, the superior, middle, and inferior occipital convolutions. O1, O2, the first and second occipital fissures.

But sound or phonation is no essential part of speech. In whispered speech phonation is absent. Neither is a passing of a current of air through the larynx, as occurs in whispered speech, any necessary part of speech, for we may lip-read the speech of a person through whose air-passages no current is passing. Speech in the strictest sense is the action of the muscles of the tongue and lips for the production of understood symbols, and under the control of a special motor centre in the brain. It may be quite silent, and yet remain true speech.

It is important to dissociate the phonetic from the kinetic element in speech, because they are registered in separate centres of the speaker's brain. A person may become so deaf that he cannot hear the sound of his own voice, and yet speak quite distinctly; while in a case of motor aphasia the hearing of the the patient's own voice is perfect, but the production of the movements which result in speech is impossible. The normal child, however, corrects the tone and pitch of his voice by using his ear, whilst both his eye and his ear are at work in helping him to produce vowels and consonants, and the result is distinct, well-intoned musical speech. In imitating the movements which he finds result in speech, he is also guided largely by his sense of touch, so that the movements of his lips and of his tongue enable him to reproduce accurate speech, even when the latter is not phonetic. The impressions which have reached the child through the two great gateways of knowledge—the eye and the ear—have enabled him to respond with speech, for which there is no substitute in the very young child; and when he arrives at school age he meets his teacher with a vocabulary which, although not extensive, has been so long used for the expression of his thought that its use has become automatic. The pre-speech or sign stage of the hearing child's life is short and its effects transient, and does not influence profoundly his ultimate thought methods.

In discussing the operation of the language centres, it is important to distinguish between speech and language. Language, as we shall see, includes speech and very much more; speech is the expression of thought by articulate movements. For want of the observation of this distinction, physiological and clinical text-books often suffer in clearness —*e.g.*, the translation of Professor Preyer's book, *The Infant Mind*, also Hutchison and Rainy's *Clinical Methods*, where speech proper is referred to as "spoken speech" and writing as "written speech."

There is a sense in which the history of the individual is the history of the race, and the history of the race is the history of all the life which has preceded it, and this must be borne in mind in tracing the rise of intelligence in the young child. Starting with the assumption that language is the common possession of animals and man, let us see in what this common possession consists. And in order to make this and much more which follows clear, we must define what language is.

Language is that by which thought or feeling is expressed or conveyed. It is not the exclusive property of man. In both its vocal and silent forms it exists amongst animals, and serves for the thorough education of the young by the mother just as it does with us. When language becomes not only vocal but articulate it is commonly called speech, and as such is the exclusive property of man. As used by man, language is either natural or artificial.

Natural language consists chiefly of facial expression, as shown in crying, frowning, laughing, &c., most elements of which are possessed alike by animals and man, and most elements of which are retained by man to ornament or enforce the more exact and extended form of language which we call speech. These facial expressions, together with gesticulation and gestures imitating actions, form the sign-language of the deaf, a language which is really cosmopolitan, and is understood, even when somewhat abridged, by the deaf of all countries. This sign-language of the deaf has nothing to do with the manual alphabet language, which is not a natural but a purely conventional form of language, and is really a system of writing in the air by means of the hands.

There can be little doubt that these natural signs were the earliest form of human language, and there is no doubt at all that they are the earliest form of language understood by the young child. From his earliest infancy the child has conventional words associated with these signs, but the signs are understood long before the words, and without the use of the signs the education of the child would be indefinitely postponed. The mother who invited the child to leave his nurse's arms without smiling and holding out her own arms would hopelessly fail to make the child understand the words, "Come to me, my dear." And there is no doubt that the ease with which deaf children fall back on natural signs as a means of expressing their thoughts and feelings is partly due to the fact that these are the oldest forms of language used by man. The outfit for the practice of this natural sign-language consists of fair eyesight and the use of the muscles of the face and upper limbs, or, in the map of the surface of the brain, the integrity of the centres V and G, together with their associating fibres (Fig. 2). In the young child speech follows the language of signs and gestures, and precedes drawing and writing, and in the history of man there can be no doubt that speech also was added to the sign-language long before writing or graphic delineation of any kind came into being.

We know nothing of the first forms of human speech, but these must be of great antiquity: so great, indeed, that all present forms of speech are, in comparison, recent, and all forms of writing as of yesterday. Primitive human speech was probably developed from a system of calls and a kind of chatter such as exists among the higher animals of to-day, and an existing motor centre was put to a new use.

The motor centre or centres for the control of the muscles of the lips, tongue, and throat had parts of their substance gradually set apart for the modification of the voice in speech, and either in it or in an associated centre the power to record the memory of the words produced and learnt became established. No new cohesion or association of centres by tracks of fibres was necessary: as voice became articulate and speech became precise, old centres enlarged to meet new needs. But the acquisition of speech made higher thought possible by giving an exact means of expressing it, and by making the expression of abstract ideas possible. By signs and gestures, even when aided by inarticulate vocal utterance, only the immediate wants of an animal can be expressed, and amongst the deaf in our own time gesture language is not capable of expressing exact thought or abstract idea. It is upon this acquisition of speech, say after the age of fifteen to eighteen months, that the rapid mental development takes place, which, even before he goes to school at the age of five or six years, places the child far ahead of the most advanced and experienced animal. It was the acquisition of speech by primitive man which made his rapid advance in mental power possible, and which in the brain is shown by the greater relative bulk of the cerebrum. This setting aside of parts of existing centres for highly specialised purposes has been repeated in the history of the human race. A part of the auditory centre has been set apart for word-hearing and a part of the visual centre for word-seeing: and, when we come to study the phenomena of word-deafness and word-blindness we shall see that these are quite compatible with otherwise perfect sight and hearing.

The acquisition of speech by the race has been attended by some relative disadvantage. Equipped with his higher power for the exact expression of thought and feeling, the need for the great acuteness of the other senses, such as smell, becomes less. The sense of smell in the dog and deer is infinitely more acute than in man, and the eye as an optical instrument is in many ways far inferior in man to what obtains in some families of the lower creation: but the possession of speech, which has rendered the exercise of smell and sight for the purposes of self-preservation less necessary, has conferred on man advantages which far outweigh these relative losses.

In speaking of the acquisition of speech by the young child, Bastian[1] says—"The potentiality of attaining to such a power the child receives in the main as an inheritance from so many antecedent generations of men that its actual manifestation — the acquisition, that is, of the power of speaking—can only be regarded as a motor achievement of an order similar to some of those which may be included amongst the instinctive acts of lower animals, the similarity being not so much with the instinctive acts that animals are born with the capacity of performing, but rather with those which manifest themselves a little later in life, and which (from the more gradual acquirement) might be thought not to be instinctive acts at all. . . . Slowly elaborated developments of the parts of the medulla and of the brain concerned in the acts of speech we may presume had taken place in remote individuals of the present race as they acquired additional powers in this respect, and the power of developing similar structural connections between nerve cells and nerve fibres thus established having been handed down and rendered more perfect by hereditary transmission through countless succeeding generations, the infant is born to-day, perchance, with the potentiality of developing a nervous system as complex and as perfect in this respect as any which may have preceded it in its own ancestral line."

Possessed of the power of speech, and with a desire to have some permanent record of his thought, man invented the art of writing. At first this form of language was, like that which preceded speech, natural and graphic, and consisted of picture-writing. Later, with the invention of the alphabet, it became, like speech, artificial and conventional. But while speech is a mere symbol of the thing represented by the word, the connection between writing and the thing it represents is even looser. It is but the "symbol of a symbol," for when we write or read a word representing an object, we think of the object through the word, and in most cases where the power to call up, by what may be called internal speech, the name of the object is lost, the power to write or read the word is also lost. Only in the more highly-trained intellects is it possible to do without this intermediary internal speech, and write or read the name of the object directly.

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[1] *The Brain as an Organ of the Mind*, fifth edition, 1902, p. 604.

The centre for speech is, in part at least, a motor centre, and in this respect differs from those for sight and hearing. These latter are purely sensory. The memory of words spoken is largely a memory of movements made by the muscles of articulation, and must be distinguished from the memory of words heard. This distinction is of importance with regard to the practice of speech and of lip-reading by the deaf.

In the processes of thought, these associated language centres for vision, hearing, writing, and speech co-operate, and though all are not used in every thought process. yet all are called in when the thought process is at all involved or obscure. If a stranger ask a native for a little-known street, the latter will often repeat the name of the street audibly before giving his direction to the stranger, thus making his speech and auditory centres co-operate in recalling to his mind the locality of the street wanted. If one have difficulty with the spelling of a word, the correct spelling is often quickly arrived at by writing the word and looking at it, thus calling in the visual to the help of the auditory and speech centres. The comprehension of an obscure passage in a book is often improved by reading the passage aloud, the auditory and speech centres being thus called in to the aid of the visual centre in unravelling the meaning of the language employed. In this last instance, centres which had become automatic in their operation, and which demanded no separate act of attention, were called in—that is to say, audible speech assisted the higher centres in the comprehension of the obscure meaning. But the opposite of this is sometimes the case. If an Englishman, learning French, read the foreign language aloud, with the object of improving his pronunciation and accustoming his ear to the sound of the half-learnt language, he will find that the comprehension of the passage is more difficult than it is when read silently, and he may fail altogether to reach the meaning unless he take to silent reading. In this last instance the operation of the motor speech and auditory centres is not automatic—they require increased attention, and their addition to the circuit of thought centres obscures rather than aids comprehension. This explains what is found in orally taught deaf children, that, in the later years of their school life, speech sometimes deteriorates because their attention is being occupied by efforts at the comprehension of more difficult language, and as less of it is given to speech, the latter becomes less distinct: and it supplies the physiological reason for devoting the earlier years of school life to speech and lip-reading, and only beginning writing and more difficult language training after speech has become as nearly automatic as possible.

The use of the term "automatic," as applied to the operation of the language centres, requires a little explanation. It is used in the sense of "secondarily automatic" as against the primarily automatic operations of breathing, circulation, &c., which are in operation from birth, which continue irrespective of the child's will, and on which his continued existence depends. But none of the special senses are automatic at birth: all have to be trained before they become automatic. All children are born deaf and blind. It is many days before a young child can be startled from his sleep by a loud noise, or before he can be made to follow a bright light with his eye. Further, none of the language centres becomes automatic over the whole field of possible experience. The most acute eye will fail, without some training, to appreciate all that can be seen in a field of the microscope, and the most acute ear requires training or repeated experience before it can appreciate the features of a fugue or a sonata. The term "automatic" is, therefore, a relative one with regard to the eye and ear, but it is much more so with regard to the operation of the speech centre. This centre is not called into action nearly so soon in the life of the child as are those for the eye and the ear. But a time comes in the life of a child when the use of a vocabulary of common words becomes automatic, and then the inclusion of the speech centre in the

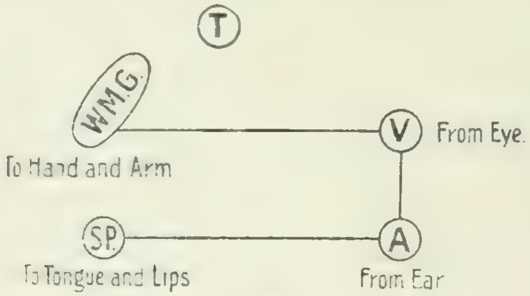


FIG. 4.

Language centres in the normal child.

Sp., motor speech centre (glosso-kinæsthetic centre); WMG, writing, manual alphabet, and gesture centre (cheiro-kinæsthetic centre); A, auditory centre, including auditory word centre; V, visual centre, including visual word centre; T, touch centre.

circuit of difficult thought processes renders it useful or beneficial to the latter. This process is a continuous one in the life of a child, more and more difficult words being added to the automatic vocabulary.

It is not contended here that speech is of no use in assisting thought unless it have become automatic, but it is contended that unless it have become so, it is not spontaneously called in to the aid of the more difficult thought processes.

During the process of silent thought, words are revived and used as the symbols or counters by means of which the process is carried on in the thinker's mind. This may occur in a normal individual in three ways—(1) There may be a revival of the sounds of words as we hear them read, or as we hear ourselves use them in ordinary conversation: (2) there may be a revival of the appearance of words as we see them after we have written them, or as we see them on the printed page: (3) there may be a revival of the feelings or sensations produced by the articulation of words. Probably most of us think in mixed images, but there can hardly be any doubt that, in carrying on this internal language, the revival of the sounds of words is the commonest, or, rather, the most conscious experience we undergo, hence most people are called "auditives," whilst those who think in revived word appearances, whether written or printed, have been called "visuals."

A good deal of controversy has occurred about the revival of words by the third method—as motor processes. Hughlings Jackson, Stricker, and Ballet hold that words are generally revived as faint excitations of the processes occurring in motor centres during the articulation of words, and each quotes his own experience as supporting this contention. Bastian, on the other hand, supports the view that words are revived in ordinary thought in the main as auditory ideas or images.

When from disease in a young child one or more of the language centres is thrown out of the circuit, the disturbance to, or impairment of, thought varies with the centres affected.

The condition of the blind child is not so difficult as at first appears. No doubt one of the great gateways has been closed, but it is that by which general effects rather than expressions of exact thought reach the brain. And with perfect hearing his speech develops with scarcely lessened pace, so that intellectually he is scarcely less fit to enter school than the ordinary child. His ability to appreciate accurate expressions of thought reaching him by the sense of hearing, and to respond by equally accurate expression through easily understood speech, makes rapid intellectual development possible. Internal language may be carried on in the blind child, as it is chiefly in the normal child, by revived auditory impressions or by revived motor impressions, but never by revived visual impressions. There is, however, a third possible method, namely, by revived touch impressions, touch taking the place of sight.

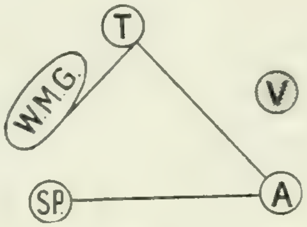
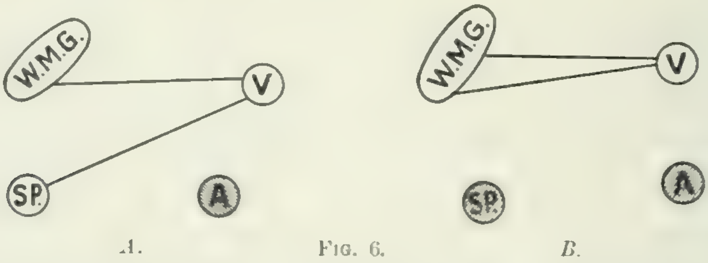


FIG. 5.

Language centres in the blind child.

References as in Fig. 4. The centre for vision is out of the circuit, and touch has taken its place.

If the position of the young blind child is better, that of the deaf-born child is worse than at first sight appears. No doubt, broad general effects are expressed to him through the sense of sight, and an indefinite language of natural signs is learnt. Without hearing, however, he has no means of receiving expressions of exact thought, and without speech he has no means of formulating his own thought in exact terms, so that he commences his school life at seven years in much the same condition intellectually as a hearing child of two years. In the interval between two and seven years his intellectual development has been arrested, and this arrest has its physical expression in the relatively smaller head of the deaf-mute child. Further, he meets his teacher without any stock of words to begin with, and the early years of his



A. FIG. 6. *B.*

Active centres in the deaf. *A.* The orally taught child (only A is inoperative) *B.* In the manually taught child (both A and Sp are inoperative).

Sp, speech centre; A, auditory centre; V, visual centre; WMG, writing, manual alphabet, and gesture language group of centres.

education are spent in getting together some form of verbal language. In carrying on internal language he cannot be an auditive; he must be a visual or a tactual. Sometimes his speech becomes so automatic that he thinks by recalling the movements of his lips and tongue as used in speech. On the other hand, his eyes have been so accustomed to take the place of his ears that he may easily think in the revived impressions of words as seen on the printed page, or as seen on the lips or hands of those who have spoken to him. He must always differ from the hearing child, and even from the semi-mute child. These latter have used their auditory and speech centres so long that their influence can never be wholly eliminated from the thought processes. The congenitally deaf child has by six or seven years become such a confirmed "visual" that visualising is apt to predominate in his thought processes.

The following conversation between Dr. Forchhammer,[1] of the Nyborg Institution for the Deaf, and his congenitally deaf wife illustrates the composite nature of the picture formed by thought symbols, and the difficulty of apportioning the relative value to each. Mrs. Forchhammer has full command of the Danish language, and is a good lip-reader.

Dr. F.—"How is the thinking process carried on by you?"

Mrs. F.—"In pictures almost always as if the events were present before my eye."

Dr. F.—"When you have read anything, do you afterwards, when thinking of it, see the letters before your eyes?"

Mrs. F.—"No."

Dr. F.—"When you have been spoken to, do you think of the words as seen on the mouth of the speaker?"

Mrs. F.—No; it is as if I said it myself."

Dr. Forchhammer, on a later occasion, tried in another way by asking her to recall something he had just said, and enquiring how she retained it.

Mrs. F.—"I think both of the subject and of the speech."

Dr. F.—"Do you think of my mouth or of your own speech?"

Mrs. F.—"I believe, of my own speech; it is as if I spoke myself."

Dr. F.—"What do you think of most—the speech or the subject?"

Mrs. F.—"I cannot tell—it is such a difficult matter to settle."

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[1] Communicated to the writer for the purposes of this paper.

It would thus seem that amongst the congenitally deaf there is the same variety in the use of the symbols of thought as amongst the hearing, with the exception that the former are never "auditives."

The demand that the deaf think in one definite manner is not justifiable so far as the accuracy of the thought process is concerned. The important thing is that the symbols have become so familiar to the deaf person that their use does not require any separate act of attention.

There is, however, one difference between the use of speech on the one hand and finger-spelling on the other regarding their value in thought processes. In finger-spelling, however rapid, the result reaches the eye in the form of separate letters, and not of whole words or even syllables. With speech the movements, however complicated, reach the eye as whole words or syllables, just as they reach the ear. Take the words "clang," "plough," and "through." Each of these reaches the eye of the lip-reader just as it reaches the ear of the hearing person as a single effect, whereas they reach the eye when spelt on the fingers as five or six separate impressions. No doubt as isolated words they are much more apt to be wrongly read by the deaf when spoken than when spelt, but the association in which they occur reduces greatly the risk of error. When the lip-reader is successful, his thought should be more rapid.

(*To be continued.*)

A CASE OF PERIPHERAL NEURITIS, IN WHICH THE DIAPHRAGM WAS PARALYSED FOR THREE MONTHS.[1]

By JOHN COWAN, M.D., and R. S. M'KIM, M.B.

Mrs. R., æt. 48, married, was admitted into Ward II on 8th November, 1906, complaining of pains and of loss of power in the arms and legs, and of sleeplessness, of about five weeks' duration.

On admission she was found to be a fat, flabby woman, who looked distinctly older than her stated age. She complained of pains in her hands and feet and along the costal margins, and was quite unable to sit up or to stand. She was very restless and noisy during the day, and mildly delirious at night, and at first she slept but little. The tongue was coated and tremulous, and there was considerable tremor and twitching in the hands. There was occasional incontinence of both urine and fæces.

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[1] Read at a meeting of the Glasgow Medico-Chirurgical Society held on 11th December, 1908.

Her statements were unreliable, but it seemed probable that her illness began about five weeks before her admission, shortly after the death of her son in Belvidere from "meningitis." The early symptoms were tingling pains in the arms and legs, followed shortly by weakness in the legs which soon prevented her from walking. Her appetite failed, and she suffered from flatulence, and slept badly at night. All these symptoms increased in severity until admission to hospital.

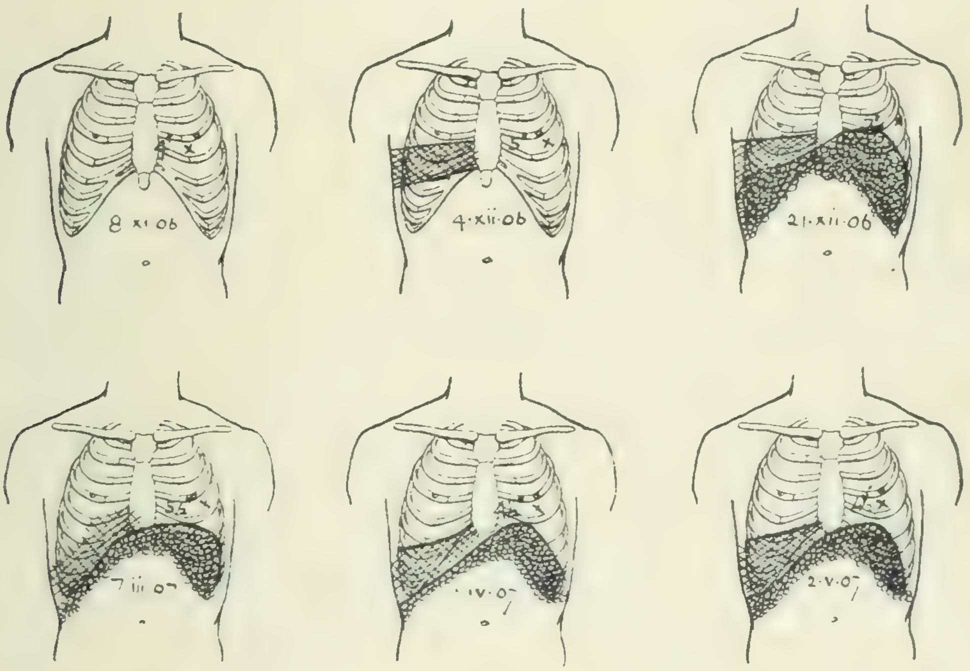

Fig. 1.

Shaded part = area of hepatic dulness.
× = apex impulse.
ooo = area of tympanites.

Her circumstances were comfortable. She had always been a healthy woman, save for an illness in 1902, which confined her to bed for about eight months, and was probably of the same nature as her present attack. She was not an abstainer, but no definite story of alcoholism was obtained.

The *lungs* seemed normal. The *heart* was normal in size and site, but the second aortic sound was accentuated, and a systolic murmur was audible in the pulmonary area. The pulse was regular, but somewhat frequent, 96; the blood-pressure was average. The *bowels* tended to be costive. The *urine* contained a trace of albumen, and was high-coloured, and deposited urates in abundance. The *liver* was not enlarged or tender. There was a large femoral hernia on the right side, which was easily reduced.

The muscles of the limbs generally were flabby and atrophied, those below the elbows and knees showing the greatest change. Power was everywhere deficient, especially at the extremities, but the only well-defined loss was in the extensors of the wrists and fingers, and in the dorsi-flexors of the ankles, which on the right side seemed completely paralysed. There was marked drop-foot on both sides, and, in a lesser degree, drop-wrist. There was no facial or ocular palsy. The muscles were very tender on pressure, and the median, ulnar, post. interosseus, and peroneal nerves were also hyperæsthetic. It was impossible to appreciate any defects in sensation on account of the mental confusion, but there was no gross anæsthesia. The ocular reflexes were normal, but none of the others, superficial or deep, could be elicited.

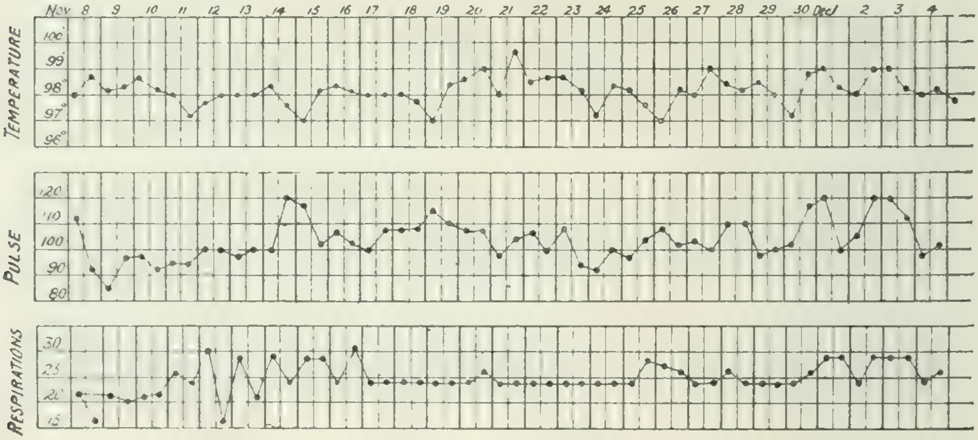

FIG. 2.

For a month after admission the patient's condition showed no improvement. The delirium and restlessness continued, there was occasional incontinence, and the palsies became more marked. In the first week of December the diaphragm was found to be paralysed. The costal arch was unduly widened, the epigastrium fell backwards with each inspiration, and the hernia no longer descended into its sac. Cough was feeble and imperfect, and largely replaced by choking fits. There was, however, no difficulty in breathing or cyanosis, and the respirations only numbered 26 per minute. The apex beat had swung outwards into the axilla, and the left chest was everywhere dull to percussion, and the respiratory murmur was extremely feeble and accompanied by a few fine râles (Fig. 1.)

During the next week the patient's general condition began to improve. The incontinence and delirium still continued, but were less in degree. Sleep was quieter, and of longer duration, the tongue became cleaner, and her appetite returned. But on 11th December it was noted that the abdominal muscles were altogether inactive.

Progress afterwards was continuous, but extremely slow. By the middle of January, 1907, the incontinence had ceased, and the palsies were lessening: in the middle of February her mental condition was probably normal; but it was the first week in March before any evidence of power in the right diaphragm was manifest, and the beginning of April before the left side and the abdominal muscles became active. On 15th April the femoral hernia redescended and became irreducible. Mr. Pringle performed a radical cure with good result. Improvement during May and June was more rapid, and before her dismissal on 26th July, 1907, she had been walking about the wards without assistance for several weeks, and even aiding in the distribution of the meals.

The illness from which this patient suffered was a peripheral neuritis, presumably of alcoholic origin, and the chief interest in the case lies in the severity and persistence of the diaphragmatic palsy, which was apparently complete for some three months. The symptoms at the outset were indefinite, and it was only discovered after it had probably been in existence for at anyrate some days. Dr. M'Kim's attention was first drawn to the abdomen by the fact that the hernia no longer descended into its sac as it had done on admission, and by attacks of choking replacing paroxysms of well-defined cough. The palsy was then complete. The characters of the pulse and respirations were not notably altered by this event, and examination of the charts (Fig. 2) shows no sudden variation in the curves, and, indeed, no notable alteration from their condition on her admission to hospital, which seems to show that both the cardiac displacement and the collapse of lung were gradual in their onset. The thoracic muscles always acted well, and no evidence of respiratory distress was ever manifested.

A CASE OF LANDRY'S PARALYSIS.[1]

By JOHN COWAN, M.D., A. J. BALLANTYNE, M.D.,
and D. MACDONALD, M.B.

Mrs. B., æt. 33, dressmaker, was admitted into Ward II on 24th September, 1907, complaining of weakness of the limbs of two weeks' duration.

On admission she was quite acute mentally, and stated that her illness had commenced a fortnight before. During the last fortnight of August she was on holiday in Fife, and for a week after her return home felt in excellent health, although she had undertaken an extra amount of housework. On 10th September, however, she noticed that her legs were weak, and the calves and her back were painful: and the weakness rapidly increased, so that on the 14th she was unable to rise from her bed. On 17th September her arms began to get weak, and by 21st September she was practically helpless, and unable to lift her head from the pillow, or to move her legs or arms. Her neck was painful on movement, she sweated profusely at night, and she had a slight cough and expectoration. For some days before admission to hospital she had "seen double," and her friends had noticed that she squinted.

Her previous health had been good, save for a rheumatic attack at the age of 19. Though married for six years she had never become pregnant. Her circumstances were comfortable, but she had hard work and long hours from her occupation as a dressmaker.

She was found to be stout and well coloured, though her muscles were flabby. She lay without discomfort flat on her back, but was absolutely helpless and unable to lift her head or limbs. The voice was a little husky and rather weak, but there was no respiratory embarrassment. Deglutition was difficult and slow, but there was no nasal regurgitation. There was complete retention of urine. The tongue was coated, and the fauces congested. She had a slight catarrh in the chest, and some muco-purulent spit. The heart seemed normal. The pulse was regular, moderately full, and easily obliterated, and numbered 96. The other viscera seemed normal.

The muscles generally were of fair size, though flabby, and were only very slightly tender on deep palpation. She was able to move her toes slightly, but otherwise could not move her legs. She could not lift her arms, but was able to move them at all the joints if the influence of gravity was not active. The abdominal muscles were powerless, and the diaphragm inactive. The thoracic movements were full and perhaps exaggerated, save at the left base, where they were apparently somewhat defective. There was evident weakness in the right facial muscles. The tongue could be protruded in the middle line, and the soft palate was elevated voluntarily. The mouth could be shut, but the "bite" was feeble and painless. The right pupil was larger than the left, and movements of the right eye outwards, upwards, and inwards were imperfect, though there was no squint during rest.

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[1] Read at a meeting of the Glasgow Medico-Chirurgical Society held on 11th December, 1908.

Electrical examination showed that the anterior tibial muscles did not react to the faradic current, but the galvanic response was brisk and active, and K.C.C. was greater than A.C.C. The reactions of the opponens pollicis were normal. The extensors of the index and little fingers reacted poorly to the faradic current, but normally to galvanism.

Examination of the reflexes showed a small response on stimulation of the right sole. The sphincter ani was active, and the urine was retained. The left pupil contracted slightly in near vision; otherwise no pupillary reflexes were obtained. Sensation of all kinds seemed normal and acute. There were no trophic or vasomotor phenomena.

For two days after admission the difficulty in deglutition and defective cough gave rise to much anxiety, but on 26th September they were both distinctly improved, and progress afterwards was rapid. On 27th September the power of the thoracic, abdominal, and arm muscles was considerably improved, and the "bite" was painful. On 30th September the diaphragm was active. On 2nd October mastication of solid food was possible, and the urine was voided naturally. On 5th October, eleven days after admission, the legs were moved on the bed. On 10th October all the reflexes had returned, and power generally was considerable. She was allowed out of bed on 8th November, and was walking fairly well by the middle of the month.

The larynx, for obvious reasons, was not examined until 3rd October, but on that date Dr. Harrington reported that the cords were moving freely.

The case is interesting from several points of view. The symptoms were entirely motor, save for the involvement of the second nerve, and affected more or less the whole of the central nervous system. The lower neuron was involved, but no atrophy of muscles or R.D. occurred. The onset was subacute, the maximum palsy being attained in fourteen days, and recovery was rapid and complete. The sphincters were not involved, and sensation was everywhere normal. These phenomena negative a diagnosis of peripheral neuritis or acute anterior poliomyelitis, and seem to index the case as one of Landry's paralysis.

The onset of the symptoms in this disease is usually more acute than was the case with Mrs. B., and the result is usually less fortunate. Dr. Buzzard considers that these cases are the result of a lymphatic intoxication, and treatment was conducted upon this supposition. Elimination was assisted, while injections of strychnine, as well as diffusible stimulants, were given freely. The most careful examination failed, however, to reveal any evident cause for the intoxication. The possibility of an infective condition was negatived by the help of the Sanitary Office; and the only apparent lesion in the viscera was a by no means severe catarrh of the respiratory passages.

Landry's paralysis seems to be rare in Glasgow, as only one case is reported in the Society's *Transactions*, namely, that recorded by Dr. George Buchanan (1906, vol. vi, p. 82), who reviewed the literature on the subject up to date.

Dr. Buzzard[1] has recently made a further communication upon the subject. He states that he has found in three cases of this disease chromatolytic changes in the cells of the anterior cornua and of Clarke's column, and occasionally excentration of the nucleus, the changes being best marked in the lumbar region, while a little fatty degeneration was present in the nerve fibres of the cord and peripheral nerves. There was no definite evidence of neuroglial or vascular changes. He considers that the pathological lesions point to a spinal intoxication of lymphatic distribution: but the cause of the intoxication is still obscure.

NOTE ON THE OCULAR SYMPTOMS.

History.—The patient stated that before the onset of her illness she could read without glasses, and carried on a dressmaking business without any visual difficulty. About six days before her admission, that is, a few days after the onset of her illness, she began to see double, and her friends noticed that she squinted. Up till the time of her admission she had not observed any defect in her visual acuity.

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[1] *Brain*, 1907, vol. xxx, p. 1.

Examination.—When the first complete examination of the eyes was made on 28th September (four days after admission), the general condition of the patient had already begun to improve. The conditions found were as follows:—

The right-sided facial paresis involved the orbicularis palpebrarum, causing slight inequality of the palpebral fissures (right fissure larger than left), and practical absence of winking on the right side. Voluntary closure of the lids was possible on both sides, but was not so firm on the right side as on the left. The absence of winking in the right eye had led to lachrymation and irritation. The right pupil was dilated to a slight extent, and did not contract either on illumination or in near vision. The left pupil was also inactive to light, but contracted in near vision.

Movements of the right eye were markedly impaired, the most obvious defect being a limitation of dextrorotation, but deficiency of lævorotation, elevation, and depression were also noted. There was also limitation of lævorotation in the left eye. These facts, considered in conjunction with the fields of diplopia, apparently indicated paresis of the four recti muscles on the right side (especially of the rectus externus), and of the rectus externus on the left side.

The faculty of convergence was unimpaired. Accommodation was active throughout. Visual acuity was somewhat defective in the left eye ($\frac{5}{12}$), and still more so in the right ($\frac{5}{60}$).

The ophthalmoscopic examination showed relative pallor of the right optic disc. There was also slight pigmentary disturbance round the disc and in the neighbourhood of the macula, but these changes had apparently no connection with the visual defect, since they persisted after the latter had gone.

From the date of this first examination there was a steady improvement in the eye symptoms. Three days later up and down movements of the right eye were normal. On the 8th October the only affected muscle was the right external rectus, and this also steadily improved, although it was still slightly defective at the time of her dismissal on 6th December. When she was seen three months later all trace of the muscular defect had disappeared.

The visual defect improved rapidly. By 8th October vision was $\frac{5}{5}$ in the left eye and $\frac{5}{15}$ in the right, and on 23rd October there was full vision in both eyes.

Her general condition put examination of the field of vision with the perimeter out of the question, and it was not till 10th October that a rough test was made. This showed some constriction of the right field as compared with the left, but no sector or hemiopic defect. Central V.A. was then $\frac{5}{10}$ in the right eye and $\frac{5}{5}$ in the left. There was no central scotoma.

Slight inequality of the palpebral fissures persisted up till the time of her dismissal, but had disappeared when she returned to report herself three months later.

The right pupil gradually recovered its reflex activity in near vision. When she was seen in March, 1908, both pupils contracted well in near vision, but the right pupil was fractionally larger than the left, and both were quite inactive to light.

On returning to work after leaving hospital, the patient experienced some visual difficulty in sewing. The refraction was estimated, and glasses gave the following result:—

R. $+1{\cdot}5$ D. sph. $\bigcirc$ $+0{\cdot}75$ D. cyl. axis $70^\circ = \frac{5}{5}$
L. $+1$ D. sph. $\bigcirc$ $+0{\cdot}5$ D. cyl. axis $90^\circ = \frac{5}{5}$

and these glasses enabled her to read Jaeger No. 1 at her working distance. The patient was seen again quite recently (21st January, 1909), and it was found that the "Argyll Robertson" pupil still persists. The right pupil remains very slightly larger than the left, and has a slightly oval form. The feeling of eyestrain at her work has disappeared.

Remarks.—All writers on this disease agree that involvement of the cranial nerves, and especially of those related to the eye, is rare.

Dr. F. Buzzard (*loc. cit.*) makes no reference to eye symptoms in his cases. Some authors, for example, Allan Starr and H. Charlton Bastian, speak of eye symptoms as occurring in the later phases of the fatal cases. A few text-books mention in general terms the occurrence of such symptoms as inequality of the pupils, loss of the pupil light reflex, paralysis of accommodation, and paralysis of extrinsic muscles of the eyes.

It is probable that ocular symptoms are even more rare in Landry's paralysis than these few references would suggest, for we have to bear in mind the tendency, to which Buzzard alludes, to confuse Landry's paralysis with such conditions as acute poliomyelitis and acute polyneuritis, in consequence of which symptoms may be credited to Landry's disease which in reality belong to one of the other related affections. Thus, for example, Dr. T. H. Weisenberg (Posey and Spiller *The Eye and the Nervous System*) alludes to three cases, in which there was ptosis, with more or less involvement of the ocular muscles. All three cases were fatal, and the pathological examination revealed a diffuse myelitis in the medulla.

The present case seems to conform to the strict definition

ALEXANDER PATTERSON, M.D.

of Landry's acute ascending paralysis suggested by F. Buzzard. If so, the presence of such well-marked eye symptoms adds to its interest. Most of them can be consistently attributed to a lesion of the third nerve nucleus. The visual defect is of special interest, since such a symptom has not, so far as one can discover, been hitherto described. Indeed, sensory defects of any kind are very rare in this disease. The nature of the visual defect limits us to a lesion in front of the chiasma, and if we assume that the disease results from an intoxication of ganglion cells, the cause of the amblyopia in this case is probably to be looked for in the retina itself. The persistence of the "Argyll Robertson" pupil phenomenon suggests the possibility of a specific element in the case.

Obituary.

ALEXANDER PATTERSON, M.D., F.R.C.S.Ed., F.F.P.S.Glas.

In our issue for last month we published an obituary notice of Dr. Alexander Robertson, who for several years was one of the visiting physicians to the Royal Infirmary. This month there falls to be recorded the death of Dr. Alexander Patterson, who for close on thirty years was one of the visiting surgeons to the Western Infirmary of Glasgow, and who died on 5th January, 1909.

Dr. Patterson was born in Draperstown, Co. Derry, Ireland, in 1835, and, when he retired from practice four years ago, he returned thither to spend the evening of his life on the small estate which has been in the possession of his family for several generations. His grandfather, his father, and he himself were each born in the same house to which he retired and in which he has just died.

Dr. Patterson was educated in the University of Glasgow, where, after a distinguished career, he graduated in 1854, then barely twenty-one years of age. He took the Fellowship of the Royal College of Surgeons, Edinburgh, in 1860, and in 1869 he joined the Faculty of Physicians and Surgeons. In connection with the latter body he was an examiner in surgery for twenty-five years.

Prior to and for some time after graduation he was a demonstrator in the University anatomical rooms under Professor Allen Thomson, and much of his boldness and success in surgical operations might be traced to his intimate knowledge of human anatomy.

Soon after graduation he began practice in London Street, and in after years he was a prime favourite as a consultant with medical practitioners in the eastern districts of Glasgow.

In 1868 he was elected a dispensary surgeon to the Royal Infirmary, and as he resided in the near neighbourhood of the Infirmary he was frequently called upon to deal with urgent surgical cases and with accidents. In this way he obtained great confidence in dealing with a large variety of emergency cases, and, among other surgical affections, an unrivalled experience of strangulated hernia.

In 1872 he became surgeon to the Lock Hospital, a position which he held until he retired from practice.

In the same year Dr. Patterson removed west, and shortly thereafter he was invited to become one of the surgeons to the recently opened Western Infirmary. The surgical staff of the new University Hospital then consisted of three surgeons—Professor George Macleod, Professor George Buchanan, and Dr. Patterson.

Dr. Patterson was a man of great activity and of few words. "Deeds, not words," was the motto on which he acted, and he ever impressed upon his students the necessity of taking an active share in the practical work of the wards in the hospital. As an operator his dexterity, greatly helped by the fact that he was ambidextrous, was well known.

His contributions to surgical literature were noted more for their quality than for their number. His papers on strangulated hernia, and on the treatment of aneurysm by digital compression, were of great value. He invented a herniotome which was an improvement on that of Sir Astley Cooper, and he also suggested the bristle probang which is still used for the removal of foreign bodies from the gullet, although his name never seems to have been specially associated with the instrument.

He was a pioneer in renal surgery, and in 1880 he published the first case of deliberate nephrotomy for the removal of a stone from the kidney. The account which he gives of this operation leaves no doubt that he deliberately exposed the kidney, incised it, and removed the stones, and was therefore the first to perform this operation.

As a young man Dr. Patterson was an enthusiastic Volunteer, and one of the outstanding events of his life, which he recalled with much pride, was that he formed one of Queen Victoria's guard of honour at the opening of Loch Katrine Waterworks on 14th October, 1859.

He was an eager and enthusiastic collector of curios; and he had a valuable collection of coins, war medals, and tokens; and his library of the various editions of Burns' poems was well known in "Burns" circles.

He was a keen fisher, and during the vacation, and at other times when opportunity afforded, he would, accompanied by his rod and his pipe, slip off to some quiet riverside and there indulge in his favourite pastime and sport.

His wife predeceased him by many years, and his eldest son, who was also a member of the profession, died in Las Palmas about two months ago.

JOHN DEWAR, M.B., C.M.GLAS., J.P., SKYE.

WE regret to have to chronicle the death of Dr. Dewar, of Portree, which took place on 12th January, after a short illness.

A native of Easdale, Dr. Dewar graduated at Glasgow University in 1887; after three years' practice as parish doctor at Dunvegan he went to Portree in November, 1890. In the course of his eighteen years' practice there he had to deal with serious outbreaks of typhus fever, notably one at Sconser. For the prompt and efficient manner in which he stamped out that disease in the district he received the special thanks of Lord Balfour of Burleigh, then Secretary for Scotland. The Local Government Board also warmly recognised his services.

He took a keen interest in the progress of medicine, and, comparatively recently, he spent part of a well-earned holiday in attending the post-graduate courses at the Royal Infirmary.

At the time of his death Dr. Dewar held the appointments of Parochial Medical Officer for the parishes of Portree and South Snizort, and Medical Superintendent of the John Martin Hospital at Uig. He was also Medical Officer of Health for the Skye District of Inverness-shire.

Dr. Dewar was one of the most public-spirited citizens of Portree, and was prominently connected with the public life of the district in all its phases. He was for fifteen years a member of the Portree School Board, was a Justice of the Peace for Inverness-shire, and last year was appointed an honorary Sheriff-substitute of the county.

CORRESPONDENCE.

To the Editors of the "Glasgow Medical Journal."

DEAR SIRS,—I would ask you to publish this letter in answer to the very adverse review of my *Manual of Medical Jurisprudence, Toxicology, and Public Health*, which appeared in the January number of your *Journal*.

I am glad to be able to inform your readers that your criticism was the first out of eighteen which did not give it a flattering appreciation. Many eminent professors and lecturers have also welcomed the publication. In the preface I state that it has no pretension to compete with the many large and excellent text-books on the subjects, but was written because of the almost complete absence of any small handbooks dealing with the three subjects.

I cannot think that the subject of toxicology is so condensed as to render its value to the student very theoretical. I have laid stress on the common poisons, but have at the same time included all the information which an ordinary examiner would expect. Though your reviewer was not apparently able to derive much information from the section on public health, his inability did not warrant him in condemning it as unsuitable for students generally. On the contrary, I have had abundant testimony from students as to the practical value of this section. I was careful to state that only a bare summary of the chief provisions of the Public Health Acts was possible, but this is surely sufficient for any student. The illustrations were either made from actual preparations or diagrams, or were bought from publishers.

For certain errors to which he has drawn public attention, I beg to thank your reviewer, but at the same time I think it is the duty of an editor to protect an author from mere ill-natured or incompetent criticism.—I am, dear Sirs, very faithfully yours,

W. G. AITCHISON ROBERTSON.

EDINBURGH, *22nd January, 1909.*

[Does Dr. Aitchison Robertson do justice to himself when he suggests ill-nature or incompetence in the reviewer?—EDS., *G. M. J.*]

CURRENT TOPICS.

John Reid Prize.—The trustees have appointed to the above prize Mr. G. Haswell Wilson, M.B., Ch.B.Glas. Mr. Wilson is engaged in pathological research in Professor Muir's laboratory at the Western Infirmary.

University of Glasgow: Medical Examiners.—At a meeting of the Court on the 14th ult., the following additional examiners were appointed:—

Materia Medica—Professor Wild, M.D.. Victoria University, Manchester. Pathology—Professor J. M. Beattie, M.A., M.D., University of Sheffield. Medicine (Systematic and Clinical)—Alexander Napier, M.D., Physician, Victoria Infirmary, Glasgow. Surgery (Systematic and Clinical)—R. H. Parry, F.F.P.S.G., Surgeon, Victoria Infirmary, Glasgow. Physiology—Professor W. H. Thompson, Trinity College, Dublin.

The Court also considered a resolution of the Senate to postpone during this transitional year the operation of the rule regarding the holding of the final examination in medicine in October, and to hold it in July. This resolution was the outcome of a petition from the students in the faculty of medicine. The Principal explained that next year the rule, sanctioned by the Senate and approved by the Court, for the holding of the final professional examinations in March and October would be in full operation.

Presentation to Member of the Health Office.—In our last issue we noticed the appointment of Dr. William Archibald to be Medical Officer to the Borough of Luton. Dr. Archibald, who was assistant to the Medical Officer of Health for Glasgow, was presented on 30th December with a gold albert and a dressing case, on the occasion of his leaving the staff. Dr. Chalmers, in making the presentation, referred to Dr. Archibald's valuable services to Glasgow, more especially in connection with outbreaks of small-pox and cerebro-spinal fever.

Workmen's Compensation Act.—The Home Secretary has issued an Order, dated 2nd December, 1908, directing that a glass-worker suffering from cataract shall be entitled to compensation under the provisions of Section 8 of the Workmen's Compensation Act, 1906, for a period not longer than six months in all, nor for more than four months unless he has undergone an operation for cataract. In the application of the provisions of Section 8 to telegraphists' cramp, so far as regards a workman employed by the Postmaster-General, the Post Office Medical Officer under whose charge the workman is placed shall, if authorised to act for the purpose of the said section by the Postmaster-General, be substituted for the certifying surgeon. The Order of 22nd May, 1907, so far as it applies to eczematous ulceration of the skin produced by dust or caustic or corrosive liquids, or ulceration of the mucous membrane of the nose or mouth produced by dust, is revoked except as regards cases arising before the date of this Order.

MEDICAL AND DENTAL DEFENCE UNION OF SCOTLAND, LIMITED.—The annual general meeting of the Medical and Dental Defence Union of Scotland, Limited, was held in the registered office on 5th November last. Professor Sir Hector C. Cameron, one of the presidents of the Union, occupied the chair. In moving the adoption of the annual report and statement of accounts, the chairman remarked that the accounts disclosed more marked progress than in any previous year, the invested funds amounting to £1,204, 9s., and the income for the year being £586. The membership at the close of the year under review was 1,177. He thought that the members might congratulate themselves very much on these figures, as showing that progress was satisfactory and consistent. Dealing with the Council's report, he referred to the statement that a large proportion of actions threatened against members, on being taken up by the Union, were abandoned, and he expressed the view that this illustrated the benefit of such an association. There could be no question that an association always suggested to persons considering legal proceedings that they would have a much more serious opposition than if they had to deal only with individuals. He also referred to the fact that the number of claims against dentists by dissatisfied patients was greater in proportion to relative numbers than in the case of medical men. Reference was also made to the printed forms issued by the Union for the use of practitioners, these being an indemnity form to be granted by friends of patients in respect of lunacy certificates, and an agreement for use between practitioner and assistant. Dr. Crawford Renton seconded the adoption of the report and statement of accounts, and this was unanimously agreed to. The retiring members of the Executive Council were re-elected, and it is now constituted as follows:—

EXECUTIVE COUNCIL.

Presidents.

Sir A. R. Simpson, Edinburgh.
Professor Stephenson, Aberdeen.
Professor Sir Hector C. Cameron, Glasgow.
Professor Kynoch, Dundee.

Vice-Presidents.

Drs. Affleck, Berry Hart, and Murdoch Brown, Edinburgh; Professor Samson Gemmell, Glasgow; Drs. Crawford Renton and Parry, Glasgow; Drs. John Gordon, Scott Riddell, and Westland, Aberdeen; Mr. Greig, Dundee; Dr. M'Lachlan, Dumbarton; Dr. Frew, and Mr. Lipscomb, L.D.S., Kilmarnock; Dr. Ritchie, Dunoon; Dr. Graham, Paisley; Dr. Laurie, Greenock; Dr. David J. Penney, Rothesay; Dr. Livingstone Loudon, Hamilton; Dr. Macphail, Coatbridge; Dr. Kennedy, Perth; Dr. Macalister, Forfar; Dr. Curror, Kirkcaldy; Drs. Moir and Kerr, and Mr. Fraser, L.D.S., Inverness; Dr. Clarke, Dumfries; Dr. Dale, Stranraer; and Dr. Ronaldson, Haddington.

Central Council.

Dr. John Gordon, Aberdeen.
Professor Kynoch, Dundee.
Dr. G. Balfour Marshall, Glasgow.
Mr. J. A. Biggs, L.D.S., Glasgow.
Mr. A. P. Robertson, L.D.S., Glasgow
Dr. A. Barr Pollock, Glasgow.
Dr. Andrew N. M'Gregor, Glasgow.
Dr. Donald Macphail, Coatbridge.
Professor Carstairs C. Douglas, Glasgow.
Dr. James Livingstone Loudon, Hamilton.
Mr. Thos. M. Brown, L.D.S., Glasgow
Dr. Alexander Napier, Glasgow.
Dr. Robert Wilson, Glasgow.
Dr. William Frew, Kilmarnock.
Dr. John Adams, Glasgow.
Dr. J. Munro Moir, Inverness.
Dr. J. Murdoch Brown, Edinburgh.
Mr. J. M. Lipscomb, L.D.S., Kilmarnock.
Dr. Robert W. Forrest, Glasgow.
Professor T. K. Monro, Glasgow.

Dr. R. W. Forrest, *Convener*; Dr. John Adams, *Vice-Convener.*

"Glasgow and West of Scotland Formulary, 1908."—The *Formulary* is the outcome of the work of a special committee of the Glasgow and West of Scotland Chemists' Association, which has originated many of the formulæ contained in it. All formulæ derived from external sources have been experimentally verified. The *Formulary* has been issued by the Association to meet the demand by local prescribers and dispensers for a compendium of standard formulæ for improved uniform combinations of the older leading unofficial remedies, and for accredited preparations of the more valuable new therapeutic agents which have come into general use since the publication of the *British Pharmacopœia* of 1898.

The formulæ have been worked out in ordinary weights and measures, as well as in percentage quantities, and the publication is one which is certain to be widely used.

POLICE MORTUARIES AND REFRIGERATING APPARATUS.—In connection with a recent drowning case in the city of London, it was found that at the time the body was removed from the water the features of the deceased were identifiable, but that by the time the body was claimed they were unrecognisable. As a result the coroner's jury suggested that proper refrigerating apparatus should be provided so as to preserve bodies for an unlimited period. The importance of such provision is at once apparent. The police have, naturally, no wish to be precipitate in ordering burial, and, as things are at present, a body may have become very offensive before being claimed by the survivors.

According to the *British Medical Journal*, the value of refrigerators in this connection was recognised not only by medical men but by the Legislature nearly twenty years ago (see Public Health Act (London), 1891, Sect. 93). The question is one which is likely to engage the attention of the public health authorities in Glasgow before long, and we do not doubt that they will successfully grapple with the matter.

THE OLD ROYAL ASYLUM OF GLASGOW.—With the destruction of the old Town's Hospital in Parliamentary Road, a link with the medical past of Glasgow has just gone. A very interesting link it was, marking the beginning of the humane and enlightened modern treatment of the insane. The immediate predecessor of Gartnavel Royal Asylum, there were strong bonds between the two institutions, and it is peculiarly fitting that the current issue of the *Gartnavel Gazette* should be largely devoted to an account of the old Royal Asylum.

Designed by William Stark—two of whose buildings, viz., St. George's Church and the Court House in Jail Square, remain with us—the old Royal Asylum was of noble design, with its dome rising from the re-entrant angle of the buildings, and we are told that "the managers could scarcely persuade the public that in erecting it an extravagant sum of money had not been squandered on external decorations." Previous to its erection "the insane folk . . . were at the beginning of the century (19th), irrespective of their social condition, confined in the cells of the Town's Hospital on the Clydeside." Touched by their sufferings, Robert M'Nair, of Belvidere, proceeded to raise money to improve their lot. He aimed originally at £400, but was gratified in obtaining no less than £7,000. The chief result was that, instead of merely improving the existing accommodation, an asylum "for patients of all classes from Glasgow and the West of Scotland" was determined upon, and three acres of ground, lying to the east of Dobbie's Loan, at that time amid green fields, were purchased. The foundation stone was laid on 10th August, 1810, and the patients were transferred from the Town's Hospital on 12th December, 1814. The original entrance avenue opened on Dobbie's Loan, but when the Parliamentary Road was formed in 1830, the Directors acquired the ground between the Asylum and the new road, and in 1835 they built a boundary wall and gateway on the north side of the road. In 1840 more extensive and better accommodation was acquired at Gartnavel, and thither patients were transferred in June, 1843, the old Asylum being disposed of to the Directors of the Town's Hospital. Such, in brief, is the history of the old Asylum. In the *Gazette* will be found a most readable account (from the pen of Dr. James Erskine) of the civic and masonic procession at the laying of the foundation stone. This is followed by brief notices of the founders and early physicians, Mr. M'Nair, Rev. Dr. M'Gill, Mr. Donald Cuthbertson (uncle of the late Sir John Neilson Cuthbertson), Dr. Robert Cleghorn (1814-1819), Dr. Balmanno (1818-1840), from whom Balmanno "Brae" takes its name, and Dr. Robert Hutchison, the first Resident Physician-Superintendent (1840-1849), who was succeeded by Dr. Mackintosh. In the course of the demolition of the buildings the foundation stone was come upon, and it and its contents were handed over to Gartnavel by the Directors of the Caledonian Railway Company.

Numerous illustrations are interpolated in the text, and add considerably to the interest of the *Gazette*. In conclusion, we quote the following, in the hope that it may reach some of those concerned:—

"We make a request for any old pamphlets, documents, plans, books, or pictures dealing in any way with or having reference to the Asylum. Possibly this magazine may reach those who know of such. It would seem that the sale of the Asylum to the Town's Hospital Directors in 1840 included its furnishings as well as the buildings, and there may still be in existence some of the furniture, &c., in early use there.

Beyond the portraits mentioned elsewhere and some silver articles we do not have at Gartnavel any tangible memories of the old Institution, and we are desirous of acquiring any that will form a link between the present and the past."

EXAMINATION AND CERTIFICATION OF TRAINED SICK NURSES BY THE LOCAL GOVERNMENT BOARD.—In pursuance of the object of securing that the inmates of the Poor-law hospitals shall have the benefit of properly trained nurses, a memorandum was recently issued by the Local Government Board, Edinburgh, for the guidance of the medical officers of poorhouses in which probationer nurses are trained.

The intending probationer is required to produce evidence of good character and good health, and having received a fair general education. The two former will be ascertained by the medical officer and lady superintendent of the hospital. The candidate's education will, unless she possess a leaving certificate, be tested by an examination in spelling, handwriting, English, and arithmetic. In addition to the above qualifications, the Board recommends that a probationer should not be formally engaged until she has had a three months' trial of the work, and has satisfied the lady superintendent and medical officer that she is in every way fitted for the profession of nurse.

A nurse's training will extend over a period of three years, including the period of probation, and during that time she will receive instruction by lectures and demonstrations, and a suitable course of reading indicated. At the end of or during the currency of the period of training, she will present herself for examination, by examiners appointed by the Local Government Board, in elementary anatomy and physiology, hygiene and dietetics, and medical and surgical nursing. In the above subjects she will be examined by written papers and orally, and in addition she will undergo a practical examination in bed-making, cooking, preparation of poultices, temperature-taking, &c. This part of the examination will be conducted by matrons of prominent hospitals. The examination may be divided into two parts, any two subjects being taken at the end of the second year, and the remainder at the conclusion of the nurse's period of training. On passing this examination the nurse will receive from the Local Government Board a parchment certificate.

This action of the Local Government Board is one which will recommend itself to all. It brings the training of the nurses concerned into line with that received in the training schools attached to large general hospitals; and not only will the patients in the Poor-law hospitals benefit by it, but the certificate will be of inestimable service to such nurses as may subsequently elect to take up private work.

The examination for the certificate was held in December last, in the University of Glasgow, and the practical part of the examination was conducted in the Western Infirmary. The examiners were Dr. George A. Gibson, Edinburgh, Dr. D. J. Mackintosh, M.V.O., Western Infirmary, and Dr. M'Cubbin Johnston, of the Eastern and Western District Hospitals, Glasgow. The practical examination was conducted by Miss Merchant, of the Eastern District Hospital, and Miss H. Gregory Smith, of the Western Infirmary. Ten of the candidates received the Local Government Board certificate.

DAVID DALE'S HOUSE.—Early last year it became known that the Directors of the Glasgow Eye Infirmary intended to dispose of the premises belonging to them in Charlotte Street. The news excited a good deal of interest in local archæological circles, and a movement was set afoot to purchase the house "as a public civic monument to be maintained by the City as a Museum." To aid the movement a paper by Mr. W. G. Black was reprinted from, and was circulated as a pamphlet.

In explanation of the interest aroused, it may be stated that the house was built in 1783 by David Dale, and is looked on as an example of the work of Robert Adam, the most celebrated architect of his day. "In every detail, both of the exterior and still more notably of the internal finishings, David Dale's house is eminently characteristic of the refined and thoughtful architecture of the master in question. . . . A special characteristic of Adam's work was the care he bestowed upon, and the grace with which he invested the internal finishings of his work—the chimney pieces, wainscoting, plaster ceilings, and even the door handles and shutter knobs, and of this an excellent example is furnished in the chimney pieces and the staircase ceilings of David Dale's house."

The house was purchased in 1852, for the sum of £2,800, by the Directors of the Eye Infirmary, and in it during the whole of his eminent career Dr. Mackenzie ministered to the poor of Glasgow. After the removal of the Infirmary to Berkeley Street, in 1874, the house was retained as a Dispensary till 1894, when the south wing was removed, and on its site, as well as on an adjacent strip of unbuilt ground, a modern Dispensary was erected.

The sum asked by the Directors in connection with the scheme mentioned above, viz., to acquire the old house and have it maintained as a museum, was £1,800. This not being forthcoming from the public—although we understand that a private offer of the amount was tendered—the Directors have let the house on lease to the Salvation Army. In the course of the structural alterations which this action has entailed the "Adam mantelpieces" have had to be removed, and intimation was conveyed to the public by an advertisement in the *Glasgow Herald* of 16th December last, in which offers were invited for the mantelpieces.

It is, of course, impossible to preserve every bit of the old architecture of Glasgow: but it is with a feeling of regret that we chronicle the passing of a house so well known to the members of our medical school, and which was once the residence of one of those merchants to whom modern Glasgow owes the inception of her prosperity.

SUPPRESSION OF CONSUMPTION.—At a conference, held in Glasgow on the 16th of last month, of delegates from district friendly societies, trade unions, co-operative societies, and other bodies, an address on "Consumption as a Social Problem" was delivered by Dr. A. K. Chalmers. The address dealt with the problems to be solved in the battle against tuberculosis, and Dr. Chalmers referred to the association of tuberculosis with poverty. Segregation of the patient was not by itself sufficient. His family, in all probability predisposed to the disease, must have their surroundings improved and their powers of resistance increased, and if this were done, an important move in the direction of prevention would have been made. Administration alone could not accomplish this; but friendly societies might do a great deal. The three-fold problem before us is, (1) getting the consumptive early, when he had the best chance of cure; (2) maintenance of his family, when necessary, during the period of his stay in a sanatorium; (3) finding suitable employment for the man after he has left the sanatorium.

MEETINGS OF SOCIETIES.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.

SESSION 1908-1909.

MEETING IV.—20TH NOVEMBER, 1908.

DR. ROBERT JARDINE *in the Chair.*

SOME PROBLEMS CONNECTED WITH DISEASES OF THE PROSTATE.

BY MR. CUTHBERT S. WALLACE.

Mr. Wallace's communication appeared as an original article in our January issue, page 1.

MEETING V.—11TH DECEMBER, 1908.

The President, DR. WALKER DOWNIE, *in the Chair.*

I.—OPERATION FOR A HYDROCELE OF THE TUNICA VAGINALIS AND AN ENCYSTED HYDROCELE OF THE CORD.

BY DR. ALEX. MACLENNAN.

[ABSTRACT.]

Dr. MacLennan showed a boy, æt. 15, who had been operated upon for a hydrocele of the tunica vaginalis and an encysted hydrocele of the cord. At the operation the encysted part of the hydrocele was found to communicate with a patent processus vaginalis. A radical cure for hernia was performed after removal of the hydroceles. The interest lay in the specimen removed. Had a hernia descended the patent sac it would have passed down behind the hydrocele of the tunica vaginalis, and would have formed a typical infantile hernia. Such a case as this was considered to go far in proving the saccular theory of hernia. The other points in favour of this theory were referred to as the *post-mortem* finding of patent peritoneal processes without the presence of herniæ or the history of such. It was also noted that ascites, which did not produce a hernia, by forming a sac often revealed its presence by entering a patent processus vaginalis showing as a congenital hydrocele. Such late congenital hydroceles often indicated a tuberculous peritonitis. The only similar effect of ascites was occasionally to protrude the umbilicus. Further intra-abdominal tumours occasionally grew down such processes and formed the contents of herniæ, yet no one would imagine that such growths had the power to force the formation of hernial sacs. The descent of the testicle requires a large opening, hence the prevalence of herniæ in male infants. In the female, similar herniæ (oblique inguinal) were found quite commonly, and were always due to the presence of a congenital sac, because the broad ligament formed part of the sac, which would not likely be the case were the sac acquired. Again, it was commonly noted that in recent herniæ the sac was long and narrow, evidently being a preformed canal waiting only distension to form the ordinary bulky, blunt-nosed hernia. Finally, the success of the radical cure, which dealt principally and most effectively with the sac, showed that the sac was the principal factor in the hernia.

Another point of interest in the case was the fact that the boy was treated as an out-patient after his operation. It was not contended that such grown-up children should be so treated, but the opinion was given that it was safe to operate for hernia upon children who could be carried home. The dressing employed was a small piece of gauze quite sealed over by adhesive rubber plaster. By this means the wound was protected from urine and other contaminations. As it was comfortable, there was little tendency for the patient to interfere with it. The dangers of operation for cure of hernia were twofold. Firstly, sepsis: it was as possible to overcome this danger in the out-patient as in the ward theatre. Secondly, the danger of giving way of the stitches, because of rough movements after operation on the way home—all such stresses upon the stitches were of trifling moment compared to those accompanying retching or even coughing, and in any case the radical cure depended not so much upon the deep stitches as upon the efficiency of the obliteration of the sac.

II.—TRAUMATIC NERVE PARALYSIS OF LUMBRICAL MUSCLES.

By Mr. Arch. Young.

The patient, J. D., a lad of 16 years, received an injury to his left hand seventeen weeks before, which resulted in fracture of the three ulnar metacarpals about their middle. The injury was caused by a blow on the dorsum of the hand, while the palmar surface of the distal extremities of the metacarpals was fixed firmly against the hutch which the lad was pushing in front of him. The effect of the blow received under such conditions would be to forcibly project the metacarpal fragments towards the palm—a point, I believe, of considerable importance in connection with the explanation of the ultimate nerve paralysis.

There was great swelling of the soft parts, back and front, at the time. The patient was treated by his doctor in approved fashion. He wore a splint on the palmar surface, extending from the knuckles to a point several inches above the wrist. This splint was discarded after six weeks, and, as the radiograph shows, the result, so far as the fractured metacarpals are concerned, has been excellent. There followed, however, a substantial disability in the movements of certain fingers, and for this the patient consulted me on 4th November, *i.e.*, twelve weeks after the original injury. At this date there was definite evidence of paralysis of all the interosseous muscles, palmar and dorsal. The paralysis was not, however, complete, though it was considerable. In addition, there was complete inability to extend actively the second and third (middle and distal) phalanges of the ring and little finger. This was clearly not in any way connected with injury to the tendons of the common extensor, which could be felt moving freely over the fractured metacarpals, and whose function in extending the proximal phalanges of the affected fingers was perfectly preserved. There was no sensory disturbance, sensation on the affected fingers being normal, both on palmar and on dorsal surfaces. Passively, the movements of all the fingers, as well as the movements of the wrist, were quite free. There was no stiffness, and no contracture or apparent tendency in that direction.

In view of the character of the original injury, and the absence of any evidence of severance of the extensor tendons, the explanation of the condition was regarded by me as most probably to be found in contusion or actual laceration of those terminal branches of the ulnar nerve, arising from its deep palmar branch, which supply the interossei and the two ulnar lumbricales. The condition could not be explained purely as the result of damage to interossei muscles, otherwise the involvement of the first or radial interosseous muscle (the abductor of the fore-finger) would not have taken place, seeing that the metacarpals from which it takes origin were not fractured. Further, the limitation of the disability, as regards extension of the two distal phalanges, to two fingers (ring and little), made it quite evident that some further cause must be sought for. The interossei which take part in producing the movement of extension of the distal phalanges of the ring and little fingers are the fourth dorsal and the second and third palmar, the little finger receiving only one, namely, the third palmar, the ring finger receiving two. The third dorsal and the second dorsal, as well as the first palmar, take origin from one or other of the fractured metacarpals, and, had the lesion been due simply to contusion or laceration of the interossei muscles, the disability should have affected the middle and fore-finger equally with the other two.

The selection of these two fingers naturally suggested that the cause, whatever it was, affected the two ulnar lumbrical muscles, and these having a different nerve-supply from that of the two radial lumbrical muscles, the most natural conclusion—and, I think, the correct one—was that the paralysis was of that purely local type. It is to be remembered that the deep palmar branch of the ulnar nerve crosses the palm in close relation to the proximal end of the metacarpals, but that its branches to the interossei muscles and the two ulnar lumbricales pass further down. Of these, the branches to the interossei are directed between the bones, while the branches to the lumbricales pass for some distance more or less parallel to them. It seems probable that in an injury of the kind described, where the bone fragments were driven violently towards the palm, the nerve branches passing longitudinally would suffer most, either to the extent of mere contusion or actual laceration. Hence the branches to the lumbricales should, theoretically, have suffered more than the branches to the interossei.

Operative interference being regarded as contra-indicated, and in view of the probability that the lesion was due to local contusion or laceration of the nerve branches supplying the interossei and two ulnar lumbricales, vigorous massage of the tissues of the palm was instituted, in the hope of encouraging absorption of extravasated blood and freeing the nerve branches from cicatricial tissue. The result, as seen at this date (11th December), seems to bear out the conclusion come to, and to justify the line of treatment adopted. The movements of abduction and adduction of the fingers dependent on action of the interossei muscles can now be carried out with considerable freedom, the recovery of function of the interossei muscles being quite beyond question. The patient has not yet, however, much power of extension of the two distal phalanges of the affected fingers, though there is a slight improvement in that direction. There is still no sensory disturbance; there is no stiffness of joints; there is no tendency to contracture.

On the whole, I think it is possible that, with vigorous prosecution of massage, the function of the lumbricales may in time be recovered.

It should be stated that Dr. A. G. Hay, who kindly tested the electrical reactions shortly after the patient first consulted me, found the two ulnar lumbricales quite unresponsive to faradic stimulation, while the interossei muscles reacted only sluggishly. To galvanic stimulation the interossei reacted normally, while the effect on the lumbricales could not be determined.

The case is shown mainly in view of the strikingly localised character of the paralysis, and of the difficulty in arriving at a diagnosis of the precise nature of the lesion causing it. In the explanation put forward already, the most satisfactory solution seems to have been reached. The escape of sensory branches of the ulnar nerve is probably to be explained by their higher origin and more superficial situation. Those intrinsic muscles of the thumb and little finger supplied by the ulnar nerve were at no time involved. This is capable of simple explanation on the same lines, the branches to the adductor and flexor brevis of the thumb being the ultimate twigs of the deep palmar branch of ulnar, and so not coming so definitely into the region of injury, while the branches to the hypothenar group of muscles are given off altogether above the seat of injury.

III.—PERIPHERAL NEURITIS, IN WHICH THE DIAPHRAGM WAS PARALYSED FOR THREE MONTHS.

By John Cowan, M.D., and R. S. M'Kim, M.B.

IV.—A CASE OF LANDRY'S PARALYSIS.

By John Cowan, M.D., A. J. Ballantyne, M.D., and
D. Macdonald, M.B.

These papers appear as original articles at pp. 104, 108.

V.—CONGENITAL ABSENCE OF THE FIBULA.

By Dr. George M. Gray.

Congenital absence of the fibula is one of the common abnormalities of the bones of the lower extremity, but as the majority of cases occur and are described clinically, it has been thought that a note on the dissection of this condition would be of some interest.

The condition occurred in an elderly female subject in the dissecting-room of the University. No fibula could be palpated from the outside. The foot was in a position of marked valgus with a tendency to calcaneum. Only four toes were present.

The fibula was represented by a stout fibrous cord for the greater part of its extent. Towards its lower end it became cone-shaped and hollow, the space being filled up by a mass of spongy bone. At its extremity it presented a disc of dense bone, with a smooth cartilage-covered facet for articulating separately with the tarsus. At the upper extremity the fibrous fibula was directly continuous with the external lateral ligament of the knee-joint. The tendon of the biceps was attached to the fibrous fibula, and immediately below it was the insertion of the popliteus muscle. From the deep aspect of the upper extremity a stout fibrous cord ran, to be attached to the outer surface of the external semilunar fibroplate. A thick band continuous with the interosseous membrane ran from the superior extremity of the fibrous fibula inwards to be attached to the external tuberosity of the tibia.

The tibia was somewhat smaller than that of the other leg, and was curved, with the convexity inwards. The inferior extremity anteriorly was somewhat lipped, the inferior articular surface being continued upwards for some distance on the anterior surface corresponding with the position of dorsi-flexion maintained by the foot.

In the foot the astragalus, os calcis, scaphoid, and cuboid bones were all fused into one composite bone. The upper surface of this bone showed an articular surface for the tibia, and external to that a small round surface for articulation with the fibula. This articulation possessed a synovial cavity separate from that of the ankle-joint. On the under surface this composite bone showed a ridge corresponding to the sustentaculum tali, and internally two small rounded facets fitting into two corresponding depressions in the conjoint tendon of the tibialis muscle, and evidently walked upon. Externally the bone presented a projection forwards corresponding to the cuboid bone. The three cuneiform bones were present. Four metatarsal bones were present. The first and second articulate with one another at their bases, and the second presents a small projection at the inner aspect of its base, which may be regarded as the vestige of the missing metatarsal.

All the muscles normally present in the leg were found with the exception of the peroneus tertius. The peroneus longus and brevis muscles joined to form a triangular fascial expansion attached to the outer side of the conjoint bone, and prolonged forwards to the base of the fourth metatarsal. The tibialis anticus muscle, in addition to its usual insertions, sent prolongations round the inner side of the foot to join the tibialis posticus muscle in a very strong fibrous expansion attached to the tarsal bones and bases of the metatarsals, and showing depressions fitting over the raised facets in the under aspect of the composite bone.

All the intrinsic muscles of the great and little toes were found. Three lumbricales, and three dorsal and two plantar interossei were present.

The anterior tibial nerve below the level of the ankle ended in a large ganglion swelling, from which twigs proceeded to the tarsal joints, extensor brevis digitorum muscle, and to form communication with the musculo-cutaneous nerve.

About 128 cases of congenital defect of the fibula are on record, the greater number of these having occurred in males. The defect may be bilateral, complete, or partial, and often is accompanied by other congenital defects, *e.g.*, loose-lip or cleft palate.

Etiology.—Of the long bones, the radius is most frequently abnormal, the fibula being a close second. The defect of the fibula is usually associated with curving of the tibia and a scar in the skin over that bone. There are two possibilities in the etiology of such a condition as this—(1) alteration in environment, (2) defect of development *per se.* The former has been thought to play the most important part in producing deformities, and in the case of fibula defect, as Dareste first pointed out, this condition may be brought about by a narrow amnion. Between the fifth and sixth week it is conceivable that the pressure of a too-tightly fitting amnion interferes with the development of the exposed fibula and outer toe or toes. Lack of space will determine the bend of the growing tibia, and the so-called scar is a result of the adhesion of the outermost part of the tibia to the enveloping wall. But it is hard to believe that the condition described in this case could be the result of pressure alone. The changes and variations produced in the joints could scarcely be the result of pressure, and one is inclined to think that some defect in the internal factor, formative force, or whatever you please to call it, must, in addition, play a part in producing such anomalies.

VI.—HERNIA THROUGH A FORAMEN IN AN APPENDIX EPIPLOICA ATTACHED TO THE SIGMOID FLEXURE.

By Dr. George M. Gray.

The following condition was discovered in an elderly male subject in the dissecting-room of Glasgow University during the winter session 1907-1908:—

When the abdomen was opened the superficial coils of small intestine were seen to be considerably distended, and, on pushing these aside, the bowel was found to be obstructed by what appeared to be a circular band attached at two places to the sigmoid flexure. Five feet eight inches of ileum had passed through the ring formed by this band and lay in the pelvis. This length of ileum was collapsed, and measured about half an inch in diameter. The length of ileum between the ileo-cæcal junction and the end of the strangulated coil of bowel was 4½ inches. The coils of gut were easily withdrawn through the ring, and the condition was seen to be as follows:—

The appendices epiploicæ in this subject were abnormal in form. They were triangular, with broad bases at their attachments to the bowel, the extent of these attachments being in some instances as much as 4 inches. Two of the appendices, both of them attached to the sigmoid flexure, showed perforations or foramina, one only large enough to admit the tip of one finger, but the other easily admitting the tips of five fingers, and through this latter foramen the ileum had passed. The smaller foramen was through an appendix situated slightly higher up the sigmoid than that which had the large foramen. Both foramina showed round smooth edges, there was no fusion of adjacent appendices, nor was there any evidence of peritonitis, so that the condition seemed a congenital one.

No history of the subject prior to dissection was obtainable.

So far as I have been able to gather from the literature, such a type of appendix epiploica has not been described, nor has a case of intestinal obstruction due to a loop of bowel passing through such a foramen been previously recorded.

REVIEWS.

A System of Syphilis. In Six Volumes. Edited by D'ARCY POWER, M.B., F.R.C.S., and J. KEOGH MURPHY, M.D., F.R.C.S. With an Introduction by JONATHAN HUTCHINSON, F.R.S. Vol. I. London: Henry Frowde and Hodder & Stoughton. 1908.

IN the words of the editors, "the time has come when syphilis can be discussed, and its signs, symptoms, and treatment can be described from the standpoint of modern medicine and surgery," and in producing this *System* they have been assisted by writers of acknowledged reputation in their respective branches of medicine, surgery, pathology, gynæcology, &c., The list of authors comprises no fewer than twenty-four names in addition to that of Jonathan Hutchinson.

The subjects contained in the present volume are the history, microbiology, general pathology, primary lesions and early secondary symptoms as seen in the male and in the female, and congenital syphilis, and the various articles are illustrated by no fewer than sixty-three plates.

As is fitting, the introduction to the work has been written by Mr. Hutchinson, well styled by the editors "the father of modern syphilology in England." Mr. Hutchinson's article is in the form of detached paragraphs, which are intended to suggest lines of profitable thought and future inquiry. He draws attention to the almost simultaneous discovery of the spirochæte and of the communicability of syphilis to certain of the lower animals. In connection with the latter, he warns investigators not to draw hasty and ill-founded conclusions from "purposeful" experiments, and he exhorts clinicians to continue their observations with a zeal undiminished by the brilliancy of experiment and histological research. Getting into the marrow of his subject, he touches with masterly hand such questions as syphilis and marriage, and the method of administering mercury. He holds with most others that mercury should be ordered whenever the diagnosis of syphilis has been established, and he draws attention to the probability of the detection of the spirochæte being a great gain in the direction of early diagnosis of syphilitic chancres. His remarks on "yaws" are thoughtful, and he advances sound reasons for his belief in the identity of this disease with syphilis.

Various paragraphs on simulation, by gummata, of malignant tumours, suppression of early symptoms, the "small-dose method," and other points in syphilis are not only suggestive, but full of interesting information; and in the concluding portion of his article Mr. Hutchinson warns us against "the attempt to construct hard and fast rules as to the evolution of syphilis."

All will admit the weight of his authority, also, in the statement that "a vast majority of those who have passed through an attack of syphilis, under judicious treatment, or even without it, get well, and remain well through the rest of their lives."

The History of Syphilis, by Dr. Iwan Bloch, shows the author to be a man of erudition and of a judicial mind, and justifies the editors in their choice. Dr. Bloch goes exhaustively into the literature of his subject, and readers are compelled to share his belief that the disease was brought into Europe from America by the crews of Columbus.

For power of fascinating it would be hard to beat the article by Metchnikoff on microbiology. In it the great pathologist relates the history of early researches, and gradually leads up to Schaudinn's discovery of the spirochæte. Having reached this stage, he describes the occurrence of the micro-organism in syphilitic lesions, and he summarises the researches referred to in this chapter as follows:—"All the preceding facts as to the presence of Schaudinn's spirillum in every kind of acquired syphilitic lesion, as well as in hereditary syphilis and in experimental syphilis, cannot but form, when taken together, proofs of the very greatest importance in favour of the ætiological part played by this organism."

Chapters on phagocytosis, natural history of the micro-organisms, bacteriological technique, and, lastly, on the practical application of the recognition of the micro-organism, follow. In this article the reader's attention is held from beginning to end, and we may say that it has seldom been our good fortune to peruse such a well-written *résumé* of a wide subject. In it we find not only an account of successes, but also of the writer's attempts and failures, and the honesty and absence of false shame with which M. Metchnikoff relates the latter are truly refreshing.

On the General Pathology we have a carefully written article by Dr. Andrewes. This is sub-divided into general pathology, general histology, and the problems of immunity. While the former two sections are extremely well done, the last is perhaps more interesting, as it deals with the important questions of serum-diagnosis and of vaccine treatment. The first of these is shown to be fairly well established, while the work of Metchnikoff in the direction of inducing artificial immunity by the employment of a vaccine is briefly and clearly set forth. In the section on general pathology there is a very good account of the subject of "parasyphilitic" affections.

The remainder of the volume is made up of three clinical articles—primary lesions and early secondary symptoms in the male (Colonel Lambkin) and in the female (Mr. Shillitoe), and congenital syphilis (Dr. Still). These articles will be found of great use by the practitioner. They are accompanied by thirty plates, most of which are coloured, and a large proportion of these are from direct colour photographs. Further, in each article details of treatment are given.

In every way this volume is a credit to all who have been concerned in its production. When we add that paper, printing, illustrations, and "get-up" are in keeping with the text, we feel that to recommend the book would be a work of supererogation.

A Manual of Natural Therapy. By Thomas D. Luke, M.D., F.R.C.S.E. Bristol: John Wright & Sons. 1908.

Under the title of *Natural Therapy* Dr. Luke includes those methods of treatment which are independent of ordinary medication on the one hand and of surgery on the other. His volume is thus devoted to a description of the methods of hydrotherapy, thermotherapy, and phototherapy, and of massage and electrical and dietetic treatment. There is, however, no apparent reason why climatic treatment should not also have been comprised under such a title, and its omission somewhat impairs the completeness of the book. The various methods are fully and for the most part clearly described, although the section on electrical treatment takes for granted more knowledge of electricity than is usually possessed by beginners. Here and there the English is unfortunately slipshod, even to obscureness, and on p. 18 we have the statement that "heat . . . causes increased oxidation and excretion of CO_2," followed two sentences later by the contradiction that "cold increases oxidation and elimination of CO_2, and . . . heat produces a reverse effect."

The illustrations, which are numerous and excellent, add much to the value of the book.

Inflammation: An Introduction to the Study of Pathology. By J. GEORGE ADAMI, M.A., M.D., F.R.S. London: Macmillan & Co., Limited. 1907.

THIS excellent little volume is a reprint of Professor Adami's article in Allbutt and Rolleston's *System of Medicine*, revised and published as a separate monograph of convenient size for the practitioner or medical student desirous of becoming acquainted with the recent views on the subject, and is written in such a style as to command sustaining interest from beginning to end.

The work is divided into three parts. In the first part a general survey of the process of inflammation and of what is involved in the term is given, with the manifestations of such seen in unicellular and multicellular organisms. The second part, forming the bulkier part of the volume, treats of the factors of the inflammatory process; in it, the part played by the leucocytes and their classification and properties is fully discussed; while the doctrine of phagocytosis and its relationship to the humoral and cellulo-humoral hypothesis, the nature of the exudate, and the part played by the blood-vessels, nervous system, and fixed tissue cells are also fully treated.

The concluding part deals with the general considerations of the subject, and embodies a short chapter on treatment in the light of the views expressed.

In the reprint Professor Adami makes due reference to Wright's researches upon opsonins, Bier's treatment by induced hyperæmia, and to the advances gained in the study of the subject by Shridde's method of differentiating the various forms of the leucocytes within the tissues·

Post-Mortem Pathology. By HENRY W. CATTELL, A.M., M.D. Philadelphia and London: J. B. Lippincott Company. 1906.

THIS volume, which has within a short period reached its third edition, extends to 500 pages, and is aptly described as a practical work for students and practitioners, copiously illustrated with coloured plates and figures. A number of illustrations, in fact, we regard as quite unnecessary.

The text has been thoroughly revised and most of the recent work in this department of medicine incorporated, while two short chapters bearing on plant pathology and the teaching of *post-mortem* technic have been added.

Regarding the contents of the book, one can add but little to what has been said in commenting on the previous editions. The methods of examining the various cavities and organs of the body are described in detail, and the significances of the *post-mortem* findings fully discussed.

The methods of preparing museum specimens, of hardening tissues for microscopical examination, and the bacteriological investigation of cases are also gone fully into; while the chapter on medico-legal suggestions is well worth perusal.

We commend the book to those who have occasion to perform *post-mortem* examinations as a well written and up to date text-book.

A Text-Book of Pathology. By ALFRED STENGEL, M.D. Fifth Edition, thoroughly Revised. London: W. B. Saunders Company. 1906.

THE fifth edition of this text-book has been considerably revised and somewhat increased in size, but the character of this work—that of a student and practitioner's text-book —has been maintained. The chapters on inflammation and immunity have been augmented and revised in the light of recent work; and the chapter on bacteriology is made fuller by a better account of the organisms of the diphtheria and typhoid groups, and the addition of a description of the meningococcus and the dysentery bacillus, while the relationship of the spirochæta pallida to syphilis is also dealt with. In the chapter on animal parasites an account of the protozoa responsible for certain of the tropical diseases is given.

In the other parts of the work there is but little change; some alterations and additions are noted in the chapter on nervous diseases; and the fine plates of the Weigert method are also new. The appendix on pathological technic should prove valuable, and the methods described have been carefully selected.

The fact that this text-book has reached its fifth edition is sufficient guarantee that it serves its purpose well, and can be highly recommended.

High Frequency Currents: Their Production, Physical Properties, Physiological Effects, and Therapeutical Uses. By EVELYN CROOK, M.D., B.S.Lond., F.R.C.S.Eng. London: Baillière, Tindall & Cox. 1906.

THIS book consists of about 200 pages, and is divided into three parts. The first part, of about 80 pages, is entirely occupied with the production and physical properties of high frequency currents, and apparatus is discussed in some detail. The second part occupies about 40 pages, and discusses the physiological effects of high frequency currents. It consists largely of the information published some years ago by Denoyés, much being the work of Apostoli and his assistants. The remaining 50 pages are devoted to the therapeutics of high frequency currents and reports on cases. The sections on physical and physiological properties and appliances contain much useful information, and will repay the time spent in studying them. The part on treatment is unfortunately poor. Here the author quotes largely from several writers —without comment—the impression given being that in electricity in this form we have an agent powerfully curative in a number of serious diseases, and that to a degree far beyond what we believe to be the case. We are far from denying a useful place to high frequency currents in the physician's armamentarium, but we believe their usefulness is far overstated in this book. For example, we are given the impression that phthisis pulmonalis is very amenable to this form of treatment.

A Synopsis of Surgery. By ERNEST W. HEY GROVES, M.S., M.D., B.Sc., F.R.C.S. Bristol: John Wright & Sons. 1908.

THIS is an unpretentious book, whose scope is indicated by its title, meant to be used by the student in revising his reading of the usual large text-books. The recommendation to the busy practitioner might, however, have been omitted, as something more encyclopædic is obviously wanted when reference is required in a case of difficulty. But for the former purpose this epitome fulfils its function admirably. Indeed, if interleaved with blank pages for making diagrams and further notes, it might be taken as a nearly ideal set of "students' notes," such as, notwithstanding the objections so often raised to cram books in general, are in almost universal use in our extra-mural schools. The notes are very complete and well arranged; the classification for purposes of diagnosis of swellings in connection with bone, of abdominal affections, and of inguinal swellings being specially valuable. There is a chapter also on surface markings of the body, which, however, would have been more useful with one or two diagrams. The contents on the whole are eminently up to date; due attention being paid to the use and scope of Calmette's reaction and the opsonic treatment in tuberculosis, of Bier's hyperæmia in acute inflammations, of pneumatic chambers for operations on the chest, and the danger of acid intoxication. In a few cases the advice or information is open to criticism, especially where no alternative is given, and where space does not allow of the matter being discussed; and herein lies the chief danger in attempts to replace full text-books with a work of this size. Amongst other things, the possibility of a normal liver dulness with free gas in the peritoneal cavity is denied; the operation of cutting down directly on an umbilical hernia, which is the least easy way, is alone mentioned; the probability of acute arthritis arising from bone disease in the vicinity of joints, so well known to occur in children, is hardly mentioned; while the treatment recommended for acute peritonitis, especially the advice to swab away all exudation, is not in keeping with usual practice of the present day. The section on the affections of the brain also is too scant to be of great use, and is hardly up to the standard of the rest. With these exceptions the book, which is wonderfully readable considering its form, should prove very useful as a digest for the student, and also perhaps as syllabus of lectures for his teacher.

Anatomical Terminology, with Special Reference to the [*BNA*]. By LEWELLYS F. BARKER, M.D. London: J. & A. Churchill. 1907.

THE Basle anatomical nomenclature is a list of about 4,500 anatomical terms, accepted at Basle in 1895 by the German Anatomical Society as the most suitable designations for the various parts of the human body which are visible to the naked eye. The present work is issued as a concise statement concerning the origin and exact nature of this list of anatomical terms, its author having been requested to prepare it by the publishers of Morris's *Anatomy*. The work of the Commission appointed by the German Anatomical Society in 1889, which finished its labours in 1895, is fully dealt with, as are also the reasons for the revision of names.

As is pointed out, the *BNA* is not a list of new terms, the large majority of the names being carefully selected old ones. The aim of the Commission was to furnish each part with one philologically correct Latin name, and to eliminate synonymous terms and the use of personal names as far as possible.

A complete list of the 4,500 terms is given by the author.

As the system is being adopted by the text-books to a great extent, this work should be in the hands of all those interested in a precise anatomical terminology.

Lehrbuch der Topographischen Anatomie für Studierende und Aerzte. Von DR. H. K. CORNING. Wiesbaden: Verlag von J. F. Bergmam. 1907.

THE work now before us is a very good one, indeed, being a compromise between the large detailed topographical anatomies, such as those of Merkel and Testut, and the smaller and less elaborate ones of Schultze and Zuckerkandl. Its object is to give the advanced student who is studying surgery, and the practising surgeon, a sufficient guide for all practical purposes, without being overloaded with unnecessary details.

The section on the ear is well done, and is illustrated by many useful diagrams. The author, however, does not mention that the suprameatal triangle and spine were described by Macewen. The account of the lymphatics of the various viscera is excellent, embodying as it does the latest work, that of Cuneo and Poirier. A very careful account is given of the topography of the abdominal viscera, based on sections from formalin-hardened bodies, and on the lines of Cunningham's descriptions.

A notable feature of the book is the number of instructive illustrations, many of which differ greatly from those familiar to us in the text-books published in the English language.

We can strongly recommend the work to those who are interested in topographical anatomy.

The Pocket Anatomy. By C. H. FAGGE, M.B., M.S. Lond., F.R.C.S. Sixth Edition, Revised. London: Baillière, Tindall & Cox. 1908.

THE present volume is a new edition of the *Pocket Gray*, familiar to many generations of students, under a new name. As many of the standard works on anatomy have contributed towards the present edition, it was considered advisable that the name should be altered. It shows evidence of careful revision, and has been brought thoroughly up to date. We note that the sigmoid flexure is no longer spoken of, Jonnesco's account of the iliac and pelvic colon being substituted. This little work has been highly popular with students in the past, and we have no doubt that it will continue to be so.

Pocket Osteology. By PHILIP TURNER, B.Sc., M.B., M.S.Lond., F.R.C.S. London: Baillière, Tindall & Cox. 1908.

THIS is a companion volume to the *Pocket Anatomy*, and will, no doubt, fill a gap. It will be of service to students who know the bones, and who wish a concise account for revisal.

We find the work to be quite accurate. The lists of muscles and ligaments attached to each bone will be useful. We observe that the outer wall of the mastoid antrum is truly described as being formed by the post-auditory process of the squamosal. We have no hesitation in saying that the work is worth the attention of students.

Manual of Practical Anatomy. By D. J. CUNNINGHAM, M.D., D.Sc., LL.D. Fourth Edition, in Two Volumes. Edinburgh: Young J. Pentland. 1907.

THE present edition of this well-known practical anatomy has undergone extensive revision, certain parts on the thorax and abdomen having been rewritten. The illustrations are much more numerous than in former editions, many being quite new.

We observe that the auriculo-ventricular bundle of His is represented in a diagram from the dissection of the heart of a calf. The description of the stomach has been entirely recast, and is quite different from that given a few years ago, the marked differences between the cardiac and pyloric portions being fully pointed out. No mention, however, is made of the middle sphincter, which separates the cardiac from the pyloric segments.

One or two inaccuracies are present. Figs. 121 and 127 represent the fourth cranial nerve as crossing the third nerve on its inner side, whereas it generally crosses on the outer side. On page 223, the superior intercostal artery is said to pass down between the last dorsal nerve and the first thoracic sympathetic ganglion, the first dorsal being correct.

We believe this to be one of the best all-round practical anatomies extant; it is probably the one most widely used in this country.

Points in Practice in Maladies of the Heart. By SIR JAMES SAWYER, M.D. Lond., F.R.C.P., F.R.S. Ed. Birmingham: Cornish Brothers, Limited. 1908.

THIS little volume is a reprint of the Lumleian Lectures for 1908, and contains much material that is worthy of perusal, although it does not present us with any outstanding additions to present-day knowledge.

The first lecture is general in its scope, and somewhat historical in the method of presentation, leading up to the more recent advances in histology and physiology. The second deals mainly with the semeiology of cardiac affections, and in it the author emphasises many important points drawn from a wide experience. In the last he discusses the relationship between dynamic and organic affections of the heart in a way which makes it probably the most interesting, as it is the most thoughtful, section of the book.

In a volume of 102 pages, and with a good index, the author has succeeded in collecting much interesting and instructive information, and no one should regret the time spent in reading it.

Therapeutics of the Circulation. By SIR LAUDER BRUNTON. London: John Murray. 1908.

ANYONE who is familiar with Sir Lauder Brunton's previous books will look with appreciation to the perusal of the present volume, which has the same charming directness and simplicity of style as his lectures "On the Action of Medicines." In this case, also, the volume consists of a series of eight lectures, which were delivered in 1905 in the physiological laboratory of the University of London. As is to be expected from the place of their delivery, the lectures contain much of physiological interest, and, indeed, the subject of cardiac physiology occupies nearly one-third of the book, before pathology or therapeutics is touched upon at all. But the physiological section is always closely correlated with the therapeutical, and although, as Sir Lauder Brunton points out, the interruption of the lectures by experiments has led to a somewhat discursive method of treatment, the discursiveness is more apparent than real, and the whole book is steadily directed to one end, with a wealth of illustration derived from the author's rich experience. Points of especial interest in connection both with the physiology and therapeutics of the heart are the discussion of cardiac and arterial "self-massage," and of the conduction of stimuli in the heart. Sir Lauder Brunton regards as erroneous the view now so commonly held that the conduction of stimuli from auricle to ventricle is purely a muscular function, regulated by the auriculo-ventricular bundle of His, and cites in an appendix many interesting experiments by Kronecker and his co-workers, showing "that the stimulation is transmitted by co-ordinating nervous communications."

The volume, which is copiously illustrated, is brought entirely up to date by a series of appendices, and is completed by a really admirable index.

The Sexual Disabilities of Man and Their Treatment. By ARTHUR COOPER. London: H. K. Lewis. 1908.

THIS is a little book based partly on a short monograph of Professor Ultzmann, translated many years ago by this author, and partly on his observations in the course of an extensive practice. It deals briefly with sterility and impotence in the male, and considers the conditions of the semen on the one hand and the sexual physiology on the other. The symptoms and treatment of disorders of this class are discussed in a sensible and seemly manner, and as such matters are usually afforded but little space in general treatises on surgery or medicine, this little book should be of use to the general practitioner who has to deal with these cases. To those who do not care for those works of Continental origin which treat of this subject, of the kind described in booksellers' catalogues as "curious," it will prove a pleasant change.

A System of Medicine by Many Writers. Edited by SIR CLIFFORD ALLBUTT, K.C.B., M.A., M.D., LL.D., D.Sc., F.R.C.P., F.R.S., F.L.S., F.S.A., and HUMPHRY DAVY ROLLESTON, M.A., M.D., F.R.C.P. Vol. IV, Part I. London: Macmillan & Co., Limited. 1908.

WE cordially welcome the appearance of this new instalment of the *System of Medicine.* Vol. IV of the original *System* is now divided into two parts. The sections on diseases of the nose, pharynx, and larynx have been removed, and along with a section on diseases of the ear, now constitute Part II of Vol. IV.

Part I of Vol. IV, which is now before us, includes diseases of the liver, pancreas, ductless glands, and kidneys. The subject matter is changed considerably when compared with the first edition of eleven years ago.

Dr. Keith writes on the anatomy of the liver. Several articles on the diseases of that organ are from the pen of Dr. William Hunter, one of them being on the important subject of delayed chloroform poisoning. Dr. Hunter and Dr. Spriggs write on acute yellow atrophy, and on the jaundice of phosphorus poisoning; Dr. John Thomson on jaundice of the newly-born; while Drs. Herringham, Hale White, Herbert Hawkins, and Morley Fletcher are other contributors of articles on this group of diseases.

Mr. Mayo Robson writes the articles on diseases of the gall-bladder and bile-ducts, and on gall-stones.

New articles on diseases of the pancreas are provided by Drs. Bosanquet and Newton Pitt, to take the place of the original contributions by Dr. Fitz.

The subject of diseases of the ductless glands is still in want of investigation, and one is glad to have a thoroughly up-to-date summary of our actual knowledge of these affections.

In this volume diseases of the thyroid gland are discussed by Dr. Hector Mackenzie and Professor George Murray; acromegaly by Professor E. F. Trevelyan: diseases of the adrenals and diseases of the spleen by Dr. Rolleston; lymphadenoma by Professor George Murray; and the status lymphaticus by Dr. John Thomson.

Other articles which are introduced here are infantilism by Dr. John Thomson; obesity and also adiposis dolorosa by Sir Dyce Duckworth: and œdema by Professor Halliburton.

Under the heading of diseases of the kidney the following five articles are included:—General pathology of the renal functions, by Professor Rose Bradford; nephritis, by the same writer: nephroptosis, by Professor A. Macalister; other diseases of the kidney, by Mr. Henry Morris; and malformations and disorders of the ureter, by Mr. Morris also.

The editors and publishers are to be congratulated on the admirable character of this great work, which continues to be worthy of the high traditions of British medicine. The promptitude with which the successive volumes are issued is in itself no small merit.

Lectures on Babies. By RALPH VINCENT, M.D. London: Baillière, Tindall & Cox. 1908.

WE can cordially commend to the notice of our readers this little volume of some 113 pages. It is of the nature of a plea for the more rational feeding of infants, and the author most certainly makes out a very good case for his contention. According to him, some dietetic error is the root of all diseases in infancy, and though one would not perhaps agree with him entirely, as, *e.g.*, that congenital pyloric stenoses is the result of catarrh and dilatation of the stomach, there is no doubt that in this country at least the subject of dietetics does not receive its due amount of attention.

The opening chapters deal with the physiology of the child, the chemistry of mother's and cow's milk, and the manner of modifying cow's milk to suit the infant's requirements—so-called "substitute feeding." Thereafter are discussed in some detail the subjects of infantile atrophy, rickets, and gastro-enteritis, with, of course, special reference to the question of diet.

The pages are full of personal observation, and make most suggestive and interesting reading.

Reports of the Society for the Study of Disease in Children. Vol. VII, 1906-1907. London: J. & A. Churchill.

This volume will most certainly uphold the reputation of its predecessors, and is a very strong argument in favour of the Society still maintaining its individuality, and not amalgamating with the other medical societies of London. This number contains, in addition to reports of many interesting and rare cases, some longer papers on several subjects, of which the following may be mentioned:—Pneumonia in children (the Whightman lecture), by Dr. Fred. Taylor; rheumatism in children, by Dr. C. O. Hawthorne; cerebro-spinal meningitis, by Dr. Edmund Cantley; and a discussion on rickets, with papers on the etiology by Leonard Dudgeon, on the symptomatology by E. J. Poynton, on the pathology by Milligan, and on the treatment by Robert Hutchison.

Many of the reports of cases are illustrated by drawings and photographs, which materially add to the value of the production.

Husband's Practice of Medicine. Sixth Edition. By Robert F. C. Leith and Robert A. Fleming. Edinburgh: E. & S. Livingstone. 1908.

This edition of *Husband's Practice of Medicine* has been to a great extent rewritten, and very considerably enlarged. As it now appears it is a volume of over 1,100 closely written pages, covering the whole subject of systematic medicine, and presenting that subject very clearly and compendiously in a form suitable for students and for junior practitioners. The only objection to its completeness is that the diseases of the spleen and lymphatic glands are not separately described, but descriptions of them are to be found under other headings, such as diseases of the blood. A feature of the book is the thoroughness of the descriptions of morbid anatomy and pathological changes, while symptomatology, though adequately, is not quite so fully presented. Thus the physical signs of pericarditis receive somewhat scant attention, and the cardiac section generally is perhaps the least satisfactory. Renal colic is insufficiently described, not in the article on renal calculus, but only in a table giving the diagnosis between it and hepatic and intestinal colic.

In the section on nervous diseases the reaction of degeneration is not clearly explained. Bright's disease is not mentioned in the etiology of cerebral hæmorrhage (p. 869), ankle clonus is twice referred to in such a way as to imply that it is normally present (pp. 840, 933), and we are told that chorea is generally unilateral. Misprints and mis-spellings are too frequent. Thus Liebermeister is persistently mis-spelt Leibermeister; and a sentence punctuated as follows (p. 476)—"It is most frequently met with in small arteries, particularly of the brain in syphilis of the lungs, in chronic phthisis of the coronary arteries of the heart, in arterial sclerosis, and of the kidney in chronic interstitial nephritis"—ought not to have escaped the most careless proof-reader. At p. 181, also, we are referred to a list of "prescriptions at the end of the book" which proves upon investigation to be non-existent.

Apart from such evidences of hasty preparation, the book may be warmly commended as being what its authors claim for it, "concise, reliable, and modern." It is furnished with an altogether admirable index.

The Bone-Marrow: A Cytological Study. By W. E. Carnegie Dickson, M.D., &c. With Coloured Plates and Microscopical Photographs by Richard Muir. London: Longmans, Green & Co. 1908.

This book deals principally with the cellular changes which occur in the bone-marrow in the course of infections. The coloured drawings by Mr. Richard Muir, both from their fidelity and their artistic beauty, form a most valuable record of naked-eye as well as microscopic appearances in the normal and pathological marrow. The microphotographs will form a useful basis of comparison for those who have not examined extensive series of marrow-sections for themselves. The text deals briefly with the historical aspect, with methods, and with the different varieties of normal and pathological marrow. The occurrence of gelatinous transformation of the marrow in a case of ulcerative endocarditis lasting less than three weeks forms an interesting parallel with experimental observations in animals. The reactive changes in the marrow are dealt with in more detail. As regards the origin of the neutrophile myelocytes, which appear in markedly increased numbers in a marrow undergoing leucoblastic transformation, the author's expression of his views is likely to cause some confusion. As the result especially of his study of the marrow from a case of sarcoma of the kidney in a man aged 61, he upholds the origin of the neutrophile elements from non-granular cells, and says—"By utilising as a guide the somewhat exaggerated changes seen so definitely in this case, we have the key to the development of the neutrophile myelocyte under normal conditions" (p. 37). Now, it has been conclusively shown that in the embryo neutrophile and eosinophile cells arise from the non-granular undifferentiated leucoblast with basophile protoplasm; but Professor Muir has found that in the adult where the red marrow is extending the cells are nearly all neutrophile myelocytes resulting from the proliferation of pre-existing neutrophile myelocytes, and there is "no evidence that the cells are first of all non-granular in character and afterwards acquire granules." Accordingly, Dr. Dickson's statement that "we have thus traced in the adult human subject the development of the polymorphonuclear leucocyte as it is found in the blood, and this has been diagrammatically represented in Plate XII, Scheme I," (p. 45), is certainly apt to be misleading, since the first three—non-granular—stages are not part of the life-history of the majority of neutrophile myelocytes in leucoblastic marrow. It seems to us that the presence of most active mitotic division in neutrophile myelocytes with well-marked granules is of first importance in relation to the supply of neutrophile leucocytes. In any case, it would have been desirable that the writer had devoted more discussion to the subject.

For the study of erythroblasts, sections and wet-fixed films, as opposed to dry preparations, are recommended, and the author concludes that the nuclei disappear by rhexis and lysis and not by extrusion. In the examination of the giant-cells serial sections have been employed to obviate fallacious conclusions based on single sections which show only small portions of such cells. Some mention of the bearing of these specimens on Homer Wright's view as to the origin of blood-platelets would have formed an interesting addition. The phagocytic properties of vascular endothelium and the cells of the adenoid reticulum (best seen in wet-fixed films) are considered by the author to play an important part in blood-destruction. Of course, this function of endothelial cells elsewhere—*e.g.*, in the spleen—is well known. The work concludes with a bibliography, from which the important papers of Naegeli and Schridde are unfortunately omitted.

The author has rendered a good service in presenting in readily accessible and admirably illustrated form much information regarding the bone-marrow, which has hitherto been obtainable only from scattered papers.

Diseases of the Skin: An Outline of the Principles and Practice of Dermatology. By Sir MALCOLM MORRIS, K.C.V.O. New and enlarged edition, revised by the Author, with the assistance of S. ERNEST DORE, M.D.Cantab., M.R.C.P. With 10 coloured and 47 black-and-white plates, and illustrations in the text. London: Cassell & Co., Limited. 1908.

THIS is the fourth edition of the present work, but, as each of the first three editions was reprinted, this is really the seventh issue. Dermatology, like other sciences, has been advancing since the third edition was published in 1903, and the author has aimed at incorporating the necessary new matter. This has involved a certain amount of expansion of the text, and along with this we have eight new coloured plates. It need scarcely be said that we can strongly recommend this work to our readers; it is interesting as well as able and full. A special feature of the index which will doubtless be appreciated is the plan of giving a list of the appropriate remedies in connection with the principal cutaneous affections.

Prophylaxie Internationale et Nationale. By Le DR. PAUL FAIVRE. Paris: J. B. Baillière et Fils. 1908.

IN the introductory historical part of this work the various international sanitary conferences from 1851 to 1904 are briefly described, and the chief questions discussed at these conferences indicated.

National and international prophylaxis is gone into in some little detail, this part being divided into prophylaxis of the sea and land frontiers. Various methods of disinfection applicable to ships are described and illustrated, also the hospitals for infectious diseases at the several stations.

The question of the carriage of infection by rats receives due recognition, although other members of the animal kingdom might have been included with advantage.

Exceptional measures, applicable in view of threatened epidemics of cholera, are treated in a fairly exhaustive manner.

No reference is made to this country in any of the details, but as an exposition of the way in which the subject is treated in France this work is distinctly valuable and informative.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

MEDICINE.

Subtemporal Decompression in a Case of Chronic Nephritis with Uræmia; with Especial Consideration of the Neuro-retinal Lesion. By Harvey Cushing, M.D., and James Bordley, Jun., M.D. (*American Journal of Medical Sciences*, October, 1908).—The patient, a married woman, aged 22, was admitted to hospital on 24th July, 1907, complaining of headache, vomiting, pain in the joints, and swelling of the legs. The illness was stated to have begun abruptly five weeks previous to admission, but probably, from the history, was of long standing. She evidently had chronic nephritis with uræmia. Systolic pressure was 175.

On 30th July, headache was exceedingly severe, and there was considerable mental confusion. Systolic pressure registered over 230. On ophthalmoscopic examination there was a swelling of the right disc of 6 D. and of the left of 7 D. The discs were very œdematous. A great many small hæmorrhages were present on the discs and on the retina near them. For the next three months she continued in much the same state, having occasional days of improvement, but, as a rule, suffering from severe headaches, nausea, and vomiting, and other signs of pressure. By a month after admission anasarca was quite marked. She first began to complain of dimness of vision in September.

On the 13th September, an ophthalmoscope examination showed "intense albuminuric retinitis."

On 11th October, the entire retina on both sides was so swollen that it was impossible to locate the discs. The whole surface of the retina was covered with hæmorrhages of varying size, and with tremendous yellowish-white exudates. Two veins could be made out in each eye, but a careful search over the entire surface of both retinæ failed to reveal any artery. Later in October the symptoms became much aggravated. Lumbar punctures showed the fluid to be under great tension. They gave no relief, but usually had a temporary disturbing effect. The systolic blood-pressure averaged from 200 to 250 mm., and the diastolic from 170 to 190 mm.

On 24th October, under chloroform, the "usual circular cranial defect with opening of the dura" was made under the right temporal muscle. A superabundance of fluid was present in the arachnoid spaces, and the brain itself appeared sodden. The wound healed by primary union. The headaches, nausea, and vomiting ceased, and stupor rapidly disappeared.

On 28th October, the swelling was distinctly less on ophthalmoscopic examination, and the situation of the discs could be clearly made out.

On 4th November, great diminution had taken place in the swelling of the discs and retinæ. The four principal veins could be distinctly made out in both eyes, and two small white lines in each eye were suggestive of arteries. A vast improvement had taken place, and this continued. Full details are given of the fundus examinations. The protrusion after operation was considerable for a few weeks, and gradually subsided before dismissal. After being at home for a fortnight she was readmitted on 26th December in a semi-conscious state. A marked and very tense protrusion was present at the site of decompression. Treatment, including lumbar puncture, was unavailing, and she died on the 8th January, 1908. An examination of the fundi was impossible.

The *post-mortem* summary was:—Small granular kidney; cerebral hæmorrhage; arterio-sclerosis; hypertrophy of the heart; chronic aortic and mitral endocarditis; decubitus ulcers; chronic splenic tumour; hyaline degeneration of arterioles of spleen; choked disc, with retinal degenerative changes; chronic tuberculous broncho-lymphadenitis; acute broncho-pneumonia. The hæmorrhage was large and in the right hemisphere.

The following changes were present in each eye in practically equal degree:—

Retina. Fairly large spaces in both the nuclear layers and the layer of Henle are filled with a mesh-work of fibrin. There is marked proliferation of the neuroglia cells under the hyaloid membrane, giving the surface of the retina a wavy appearance. One large and several small retinal separations are visible, the spaces being filled with an albuminous coagulum. The multipolar ganglion cells are well preserved. The cytoplasm of some cells is shrunken, and of others vacuolated. The nuclei show little change. The retinal vessels show distinct endothelial and sub-endothelial proliferation; in the perivascular lymph spaces, especially of the larger vessels, there is an increase in the connective tissue elements and infiltration with round cells. Hyaline thrombi are seen in many vessels. These alterations are also present in the vessels of the papilla. The nerve fibre layer is about twice its normal thickness and is markedly œdematous.

Optic Nerve.—The papilla is swollen and extends well above the retina. New connective tissue fills the physiological cup. Cellular elements are still abundant in the new tissue. The nerve fibres are tortuous and separated; in many of the interstices between them serous and fibrinous exudates can be made out, although as a rule the spaces are clear. Thrombosed capillaries and hæmorrhage are present throughout. In places the hæmorrhages have broken through and appear on the surface of the disc. The body of the nerve is swollen, the bundles are separated, and there is some lymphoid infiltration and neuroglial proliferation. The dural sheath is much thickened. The ampulla is distended and filled with new tissue. There is a fairly widespread distribution of hæmatogenous pigment throughout the nerve-head.

Choroid shows congestion with œdema. No evidence of inflammatory reaction. The foregoing changes are illustrated by beautiful microphotographs. In view of the marked improvement after decompression the authors concluded that this case adds further evidence in support of Traube's hypothesis, that the cerebral symptoms of uræmia are largely due to pressure from œdema of the cerebral tissue. Also that the condition of albuminuric neuro-retinitis is, in large part at least, a local œdema of mechanical origin—due to a backing of cerebro-spinal fluid under increased tension into the investing meningeal sheath of the optic nerve.—ARCHD. W. HARRINGTON.

A New Method of Staining the Diphtheria Bacillus. By Wm. H. Rash, A.M., M.D. (*American Journal of Medical Sciences*, December, 1908).—Three solutions are prepared as follows :—(*a*) Saturated aqueous solution of Grubler's methylene blue, filtered, 10 cc. ; 10 per cent aqueous solution tartaric acid, 10 cc. ; distilled water, 80 cc. ; (*b*) 10 per cent aqueous solution tartaric acid, 10 cc. ; 96 per cent alcohol, 50 cc. ; distilled water, 40 cc. ; (*c*) saturated aqueous solution of Grubler's eosin ("W.G." or "rein"), filtered, 1 cc. ; distilled water, 199 cc.

Thin films are fixed by heat in the usual way, and are then stained for ten seconds in *a*, washed for ten seconds in *b*, stained for ten seconds in *c*, and finally blotted and dried. The solutions *b* and *c* should be poured on freely. Drying or washing in water between the different steps is unnecessary. The polar bodies are stained deep violet-blue. The remainder of the bacillus stains are intense pink.

A few species of leptothrix show metachromatic granules with this stain. In cultures of bacillus pyocyaneus, a bacillus is occasionally seen with granules precisely resembling a short bacillus diphtheriæ. In several strains of the pseudo-bacillus examined, a few showed metachromatic granules.

Butyric acid in 1 per cent aqueous solution in place of *b*, and substituted for tartaric acid in *a*, gives rather better results. Its disgusting odour, however, renders its use almost impossible.

The method can be used for smears, but is only to be relied on when the result is positive.

The author has given this new method an extensive trial, and has confidence in its reliability.—ARCHD. W. HARRINGTON.

The Pathological Changes in the Thyroid Gland as related to the Varying Symptoms in Graves' Disease (*American Journal of Medical Sciences*, December, 1908.)—This paper is based on the pathological findings in 294 cases. The material in 2 cases was obtained from patients who had died of hyperthyroidism. The remainder consisted of glands removed by Dr. C. H. Mayo. After the cases had been grouped pathologically, they were reviewed clinically, and classified. On comparison of the clinical and pathological classifications an almost complete parallel was found to exist between the pathological conjectures and the clinical facts in about 80 per cent of cases. In about 17 per cent the apparent disagreements were readily explicable. In 6 per cent there was a disagreement which could not be explained. The author feels justified, while refraining from positive conclusions, in making the following tentative statements :—

1. Very early acute cases show pathologically hyperæmia and cellular hyperplasia, if not throughout the gland, at least in much of it, providing, of course, the more enlarged lobe has been removed.

2. Later acute, moderate, severe, and very severe cases show greater parenchyma increase, and in many instances evidence of increased absorbable secretion. Broadly speaking, the parenchyma increase is in direct proportion to the intensity of the symptoms. The relatively few variations from this rule may be accounted for by the varying resisting power of different individuals. When relatively small amounts of absorbable secretion are found in alveoli, whose walls are crowded with actively functionating cells, we may safely assume that the secretion has already been absorbed.

3. Cases which clinically are showing any remission of toxic symptoms, show somewhere within the gland more or less evidence of decreased function in the exfoliation or marked flattening of parenchyma cells, or of probably decreased absorption, by the presence of thick, gelatinous, stainable secretion, the so-called "colloid."

4. Patients who have recovered from their toxic symptoms, and are now suffering principally from long, previously acquired heart or nerve lesions, show exfoliated or much flattened (probably non-secreting) epithelium, and large quantities of well stained, thick, gelatinous, probably non-absorbable colloid.

5. The recently developed, very mild, or moderately mild cases of long standing show pathologically almost always some total parenchyma increase

by the multiplication of alveoli, but apparently not greatly increased functionating power of the individual parenchyma cells.

6. Simple goitres should be regarded as multiple retention cysts filled with non-absorbable secretion, cell detritus, &c.—ARCHD. W. HARRINGTON.

SURGERY.

Surgical Treatment of Embolism of the Pulmonary Artery.

By Professor Trendelenburg (*Deutsche Chirurg. Gesselschaft*, reported in *Archives Générales de Chirurgie*, September, 1908).—The clinical picture is characteristic; death, far from being immediate, comes on in from ten to forty minutes—thus intervention is possible. The author experimented on animals by artificial formation of emboli, with subsequent operation and extraction of the clot from the artery. He finds that it is possible to compress the pulmonary artery for a maximum of forty-five seconds; this compression gives rise to a lowering of the aortic blood pressure, with circulatory equilibrium about two minutes after. One of the animals operated on recovered, and, on being killed three months later, a normal cicatrix of the pulmonary artery was noted.

Trendelenburg has attempted the operation once on the human subject. The case was that of a woman of 70 years, with a fracture of the neck of the femur, who presented symptoms six days after injury (sudden coma, frequent respiration, rapid and small pulse, &c.).

The thorax was opened by an osteoplastic flap at the apex of the sternum, followed by incision of the pericardium, and compression of the aorta and pulmonary artery with a clamp covered with protecting rubber. Arteriotomy was done, the clot extracted, and the artery sutured. After removal of the clamp the flap was closed. The whole operation lasted forty-five seconds. The patient died at the end of eighteen minutes, the cause being hæmorrhage through the suture holes made in lieu of rubber-guarded forceps, which would have been preferred. Besides, the author considers that valuable time was wasted in waiting for Sauerbruch's chamber.—SPENCER MORT.

Pathological Conditions added to Congenital Dislocation of the Hip.

By M. Rocher, abstracted by M. Jacoulet (*Archives Générales de Chirurgie*, September, 1908).—Many new pathological conditions have been noted in cases of congenital dislocation, including rickets, infantile paralysis, and acute and chronic inflammations.

Tuberculosis has been noted in about twenty cases, and its rarity may be accounted for by the facts that there is no direct pressure between femur and acetabulum; the normal growth and construction of bone does not go on in the displaced femur, hence there is an absence of blood congestion favouring lodgment of bacilli; and there is no round ligament, which is considered by some to shelter bacilli.

The affection seems to be met with specially in females. Clinically, three periods are noted:—

Incipient stage.—Progressive appearance of functional impediment, pains, change in gait.

Stage of vicious attitudes.—Abduction and external rotation are usually wanting; generally slight adduction and flexion are present. Palpation results vary with the seat of the tuberculosis.

Period of suppuration.—As in the normal hip.

Diagnosis is difficult, and confusion arises between these cases and those of primary tuberculosis with early secondary pathological dislocation.

The treatment generally is that of ordinary cases of morbus coxæ, and the suggestion made that reduction should first be effected is dangerous on account of the unfavourable action of such traumatism. Where fibrous changes have come on with ankylosis, a safe method is subtrochanteric osteotomy, not interfering with a possible latent germinal focus.—SPENCER MORT.

GYNÆCOLOGY AND OBSTETRICS.

The Treatment of Extra-uterine Pregnancy after Tubal Rupture or Abortion. By Professor Treub, of Amsterdam (*L'Obstétrique*, October, 1908).—Cases of sudden and fatal hæmorrhage are rare, and if death does not occur within two hours of the rupture, the patient will probably recover without operation. Early operation is not well borne and is unnecessary; a secondary operation after some weeks may be indicated should symptoms of suppuration occur. Treub admits that his views are not generally acceptable, but supports his thesis by his own experience, as well as by figures collected from the practice of his colleagues in Holland.

—E. H. Lawrence Oliphant.

The Treatment of Puerperal Infection by Fixation Abscesses. By Boissard (*L'Obstétrique*, October, 1908).—The author criticises, and in general supports, the arguments of Fabre, of Lyons, on the treatment of puerperal infection by means of injections of turpentine to produce an abscess. The pus produced in these abscesses is sterile, as shown by cultures, and Boissard has failed to find microbes in film preparations. The turpentine produces a local leucocytosis, a local "white-blood-letting," and, if this reaction does not follow the injection, the prognosis is bad. Boissard advises that this treatment should be adopted in all cases of puerperal infection which fail to yield rapidly to ordinary methods; at the same time ordinary methods should be kept up, and the author is careful to explain that, while urging the adoption of this treatment, he admits that he does not exclude the effect of disinfection of the uterus, and so on, from his general results. Of thirteen patients treated four died. In regard to technique, he recommends an injection at one point of from 3 to 5 cc. in a single dose, usually into the outer aspect of the front of the thigh or the anterior axillary line. The treatment is painful, but there is no general reaction; locally an abscess is usually formed in about six days, and, as the pus is sterile, it need not be opened till two or three days later. The cavity contains a large quantity of sloughy *débris*, which can be washed out with water or hydrogen peroxide.—E. H. L. O.

Diffuse Thrombosis of the Mesenteric Veins in the Sixth Month of Pregnancy. By Professor Paul Bar, of Paris (*L'Obstétrique*, October, 1908).—The case related is that of a ii-para, 30 years of age, admitted to hospital in a moribund condition. There was a history af a good deal of vomiting in the earlier months of pregnancy. Two days before admission she was attacked by violent pains in the left hypochondriac region, so severe as to produce a sensation of faintness, followed by severe vomiting. She soon became collapsed, and, as mentioned above, was moribund on admission. Examination showed only a pregnancy and a considerable degree of ascites; the pain had passed off, as might be expected in her collapsed condition. Professor Bar emptied the uterus, and the patient succumbed about seven hours later. The autopsy revealed a thrombosis of the mesenteric veins affecting the whole length of the small intestine. The extent of bowel necrosing would have precluded operation even had the patient's general condition allowed of interference. Cases are recorded where bowel has been removed to the extent of 40, and even 50 cm., but it is obvious that the diagnosis must be of extreme difficulty, and can be established only after the abdomen has been opened. The extreme rapidity of the course of events is remarkable in all the recorded cases, and the prognosis is very bad. In the case under consideration there was no general cause for embolism or thrombosis, and Professor Bar suggests that the venous thrombosis may have been caused primarily by a migration from the bowel of bacillus coli, which was found abundantly in and around the thrombosed veins; such a migration is not uncommon in pregnancy.—E. H. L. O.

The Prognosis of and Indications for Hebotomy. By Jeannin and Cathala, Paris (*L'Obstetrique*, October, 1908).—This is a long and technical paper discussing hebotomy, or pubiotomy, in its prognosis and indications as compared with those of the Cæsarean section and symphysiotomy. They give in detail the various complications, immediate and remote, of hebotomy and of the other operations, such as hæmorrhages, lacerations, and sepsis. They conclude that hebotomy is more satisfactory than symphysiotomy, that is, they advise that the bone be divided midway between the symphysis and the obturator foramen by an open incision and not subcutaneously, and that the wound be drained, at least temporarily. They restrict the operation to pelves with not less than 8·5 cm. (3⅜ inches) of *conjugata vera*. A mild degree of sepsis is not an absolute contra-indication as it is in Cæsarean section, but after hebotomy there is a great risk of sepsis, especially where there has been laceration extending into the vagina or urinary passages; in fact, not less than 50 per cent of recorded cases have had high temperatures during the puerperium, and, naturally, pre-existing sepsis adds to the risks. With a pre-existing grave degree of infection, they advocate Cæsarean section, with removal of the uterus. For, admitting that the uterus has become infected by attempts to deliver by the natural passages, any incision into the uterus will tend to spread the infection in the peritoneum, while section of the bone will do nothing to generalise an infection of the uterus. In septic cases, more especially with lacerations extending from the vagina to the bone or urinary passages, drainage is imperative, and is advisable in all cases. The maternal mortality is somewhere between 5 and 7 per cent, according to the care taken in selecting cases.—E. H. L. O.

"Zeitschrift für Gynäkologische Urologie," vol. i. part i, Leipzig.—We have received the first number of a new journal to be devoted to gynæcological urologie, and edited by Professor Stoeckel. It contains articles on injuries to the urinary apparatus after abdominal operations for carcinoma, by Franz; hæmorrhage from the bladder from incarcerated gravid uterus, by Baisch; the relation of intermittent hydronephrosis and genital disease, by Mirabeau, of Munich; the treatment of chronic cystopyelitis, by Henkel; the diagnosis and treatment of the pyelitis of pregnancy, by Stoeckel; the present position of renal diagnosis, by Knorr.—E. H. L. O.

Streptococci in the Urine of Lying-in Women. By Professor Henkel and Dr. Heye, of Griefswald (*Zentrbl. f. Gynäk.*, 19th December, 1908).—Cystitis is fortunately not so common a complication of childbed as formerly, thanks to the precautions to avoid infection of the bladder by catheterism. Micro-organisms are occasionally found in the urine without causing general infection, whether there be cystitis or not. Micro-organisms may pass into the bladder, after confinement, through the urethra, or by the lymphatics, directly from the vagina through the bladder walls, or indirectly by the blood-stream through the kidneys. The authors relate a case of general streptococcic infection, in which they conclude the sequence of events to have been a relapse of endocardial infection and then a general infection of kidneys, uterus, and breasts, as shown by cultures of the urine, lochia, and milk, and there were other evidences of acute nephritis.—E. H. L. O.

DISEASES OF THE EAR.

The Cosmetic and Plastic Surgery of the Ear. By Dr. M. A. Goldstein (*The Laryngoscope*, October, 1908).—The author holds that the correction of featural defects of the nose and ear legitimately comes within the province of the oto-laryngologist, and should not be allowed to remain—as in many cases it does—in the hands of unqualified "specialists" or "quacks."

He classifies cosmetic and plastic surgery of the ear in three divisions, viz., (1) correction of defects and deformities of the external ear; (2) plastic technique following the radical mastoid operation; (3) correction and closure of persistent retro-auricular openings following the radical mastoid operation. This is followed by a comprehensive and fully illustrated description of abnormalities of the auricle, ten in number, and thereafter he describes the plastic technique for the correction of these abnormalities in cases where they are so marked as to justify surgical intervention. The principles on which this technique is based are described as similar to those used in submucous work on the cartilages of the nose.

The author describes an interesting operation for macrotia, which, he claims, overcomes the objections offered to other modes of operation, by contriving to do all the operative manipulation on the posterior surface of the auricle.

Having described the technique and treatment in operations for the correction of prominent, misshapen, and exaggerated auricles, the author proceeds to discuss plastic surgery of the auditory canal, particularly the plastic technique following the radical mastoid operation, which he considers is the most important use to which plastic surgery has been put in the field of otology. He then gives the history of this branch of surgery from the Stacke-Schwartze operation in 1899, and refers to the methods adopted by many of the principal operators since then.

Lastly, the author discusses the plastic surgery of the retro-auricular fistula, which may in certain cases appear in the operative field after the radical mastoid operation, and he describes the methods adopted by three operators, viz., Mosetig-Moorhoff, Trautmann, and himself.

The article, which is a very interesting one, is accompanied by thirteen plates, each containing two or more illustrations, which serve to elucidate the letterpress.—WALKER DOWNIE.

Pyæmia of Otitic Origin, without Sinus Thrombosis. By A. Raoult (*Revue Hebdomadaire de Laryngologie, d'Otologie, et de Rhinologie*, 9th January, 1909).—The case here described draws attention to a fact which is sometimes in danger of being overlooked, viz., that we may get decided pyæmic symptoms, pointing strongly to sinus involvement, without such being found on operation.

A child of 10 suffered from acute middle-ear suppuration, complicated by mastoiditis. The mastoid was opened, and the temperature fell, but three days later it began to rise, and for the next three weeks it showed the characteristics of pyæmia, rising sharply as high as 104° F., and falling abruptly even as low as 96·4°. The child became anæmic, had severe headache, and lost flesh. The tongue and lips became dry and cracked. This was her condition when Raoult saw her. The discharge from the ear was small in amount. There was no swelling over the point of the mastoid nor over the jugular, nor was this region painful on pressure. Unfortunately, no bacteriological examination of the discharge appears to have been made.

The radical mastoid operation was carried out, all the cells being opened up and pus and granulations cleared out, but neither a perisinous abscess nor sinus thrombosis was found. The result of this procedure was the disappearance of all the symptoms, the temperature rapidly returning to normal.

—W. S. SYME.

The Treatment of Sclerosis of the Ear by Transtympanic Electroionisation. By A. Malherbe (*Archives Internationales de Laryngology, d'Otologie, et de Rhinologie*, November-December, 1908).—The author has used this method of treatment in all the various forms of chronic non-suppurative conditions of the middle ear, and also in cases in which the internal ear was affected. One is not surprised to hear that in these latter the result has been negative. In middle-ear affections characterised by fibrous adhesions between the membrane and the inner tympanic wall, in fixation of the ossicles, and even in otosclerosis, a large proportion of cases have been benefited, and improvement, in some cases marked, in the hearing has been observed. Solutions of various drugs have been used—chloride of sodium, iodide of sodium, iodide of potassium, nitrate of pilocarpine. In otosclerosis a 1 per cent solution of chloride of zinc has seemed to give the best results. In cases showing fibrous changes in the tympanum, associated with definite signs of the rheumatic or gouty diathesis, a 2 per cent solution of lithium chloride has proved decidedly beneficial.

The treatment, and especially with reference to the drugs to be used, is at present experimental, but Malherbe's results make it worth while to give the method a trial in these cases which aurists frequently find of much trouble. One would, however, recommend that other methods of treatment, such as cauterisation, pneumassage, and the internal administration of certain drugs, should be associated with it.—W. S. SYME.

Scarlatinal Otitis. By F. R. Nager (*Corr. Bl. f. Schweizer Aerzte*, 15th September, 1908, p. 592; *Medical Review*, December, 1908).—Otitis occurs as a complication in about 7 to 10 per cent of cases of scarlatina, the frequency varying with different epidemics. There are two chief types. The one—the primary—occurs within a few days of the onset of the fever, and is probably due to the exanthem, or, more strictly, the "enanthem." The second form—post-exanthematic otitis—usually occurs after the first week, and is plainly connected with the presence of a fibrino-purulent rhinitis. It is not uncommon to find diphtheritic (in the pathological sense) membranes in the tympanum, on the tympanic membrane, and, if an operation is performed, in the mastoid cells. The writer has analysed 750 cases in the Basel isolation hospital. The Klebs-Löffler bacillus was usually absent, even if membrane was present. The most frequent form of scarlatinal otitis was the acute catarrhal. Perforation of the drum was not observed in this form, and no defects of hearing followed.

Purulent otitis media occurred in 6·5 per cent of the 750 cases, and was usually secondary to rhinitis. It was frequently followed by chronic otorrhœa, deafness, and cholesteatoma. Four to 5 per cent of the cases were complicated with some degree of deafness. Mastoiditis occurred in about 1 per cent. Fœtidity of the discharge, especially if persistent in spite of treatment, was of grave significance, 50 per cent of the cases proving fatal. No case of deaf-mutism occurred. Previous statistics show that deaf-mutism occurs once in 800 to 1,000 scarlet fever patients.

Adenoid vegetations predispose so greatly to otitis that their effect, in the event of an attack of scarlatina occurring, should not be lost sight of when the question of operation is under consideration.

The ice-bag is useful in the treatment of primary otitis.

Post-exanthematic otitis is best guarded against by attention to the throat and nose. The swelling in nose and naso-pharynx should be lessened as far as possible in order to prevent stagnation of secretions. This is best done by instillation of or spraying with a $\frac{1}{3}$ to $\frac{1}{2}$ per mille solution of adrenalin, and after the nostrils have been rendered permeable a spray of tepid boracic lotion or a $\frac{1}{2}$ per cent solution of hydrogen peroxide should be used, but the nose must never be syringed.

Boracic ointment, to which oil of peppermint, eucalyptus, or menthol has been added, is then to be applied to the orifices of the nares, or a spray made up with liquid paraffin and one of the above-mentioned essential oils may be used. This procedure should be repeated several times daily. The nasal douche is especially dangerous in infectious conditions like scarlet fever.

Paracentesis should, contrary to the usual teaching, be performed in scarlet fever only for the relief of pain.

If otorrhœa develops the treatment is the same as in cases of suppurative otitis media from other causes.

The discharge is extremely irritating, especially if membrane is present, and is liable to set up acute eczema of the external auditory canal and concha.

It is not advisable to Politzerise during the first month or six weeks of scarlet fever.

Extensive necrosis or ulceration should be suspected when the discharge is persistently fœtid.

Scarlatinal otitis greatly predisposes to the formation of cholesteatomata. In two children in the writer's clinic severe scarlatina with otitis necessitated a mastoid operation. A year later a radical operation was performed, and large cholesteatomatous cavities lined with fœtid masses of epidermis were found.

In fibrino-purulent scarlatinal rhinitis the accessory cavities, especially the ethmoidal and maxillary sinuses, are frequently involved.—W. W. Christie.

DISEASES OF CHILDREN.

A Case of Sydenham's Chorea Terminating in Death. By MM. Albert Delcourt and René Sand (*Archives de Medecine des Enfants*, December, 1908).—The case was that of a boy, æt. 10 years. He had never presented any rheumatic manifestations, but his father had suffered from acute rheumatism. The patient was admitted to hospital suffering from very severe chorea, the movements being exceedingly violent. Three months before the onset of chorea he had contracted influenza. The temperature was 102·5° F., and V.S. mitral and aortic murmurs were audible. On the day following admission he was put on a mixture of chloral and belladonna, which induced more or less unconsciousness, and the movements became less severe, but owing to extreme flushing of the face this mixture was stopped about eight days later. Soon after this a general rash appeared, the movements became more violent, convulsions ensued, the temperature rose to 104·2° F., and the child died about twelve days after admission to hospital. *Post-mortem* examination revealed congestion of the lungs, vegetations on the mitral and aortic valves, a fatty condition of the liver, but otherwise thorax and abdomen presented nothing abnormal. A most thorough examination of the nervous system was made, with the following result:—

1. Extreme hyperæmia of cerebrum, with, in places, small hæmorrhages.
2. Exudation of red and white cells into the perivascular lymphatics.
3. Œdema and necrosis most marked around the vessels on meningeal and ventricular surfaces of cerebrum.
4. Degeneration of nerve cells, especially of cortex and basal ganglia.
5. Fibrillar and cellular gliosis.
6. Proliferation and hyaline degeneration of the connective tissue of meninges and vessels.*

In the majority of recent reports of *post-mortem* examinations on cases of chorea, inflammatory lesions of the cerebrum, such as described above, have been found, and, in addition, streptococci and staphylococci have been observed both in the blood and brain of choreics. Thus, it seems permissible to say that chorea is of the nature of an infection.

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* Bacteriological examination revealed the presence of staphylococci and streptococci in the brain and vegetations on the aortic valve.

Regarding the causation of the choreic movements much has been written, and the present authors synopsise the different opinions. Charcot and Raymond considered that they were due to some lesion of a special fasciculus in the internal capsule, while Kahler and Pick believe that they are due to irritation of the pyramidal tract as it passes the diseased basal ganglia. Bonhoeffer teaches that they are caused by some affection of the superior cerebellar peduncle in the vicinity of the red nucleus, and it may be said that the more recent observations of Halban and Infield tend to confirm this idea, that the choreic movements have for cause some alteration of the nervous influences transmitted from the cerebellum to the motor cortex.

The authors conclude that (1) in at least a certain number of cases of Sydenham's chorea there is evidence of a moderate and diffuse inflammation of the cerebro-spinal axis and meninges, which is characterised by very marked congestion, with, in places, leucocytic exudation, necrosis and hæmorrhage, proliferation of neuroglia, and degeneration of nerve cells; (2) the lesions are most intense in ganglia at base, less marked in motor cortex, cerebellum, and meninges, still less marked in spinal ganglia, and very slight, indeed, in bulb and cord.—LEONARD FINDLAY.

The Reflexes in Sydenham's Chorea. By M. L. Babonneix (*Archives de Médecine des Enfants*, December, 1908).—Regarding the state of the reflexes in rheumatic chorea (Sydenham's) much has been written. Some authors (Leroux, Blocq, Grenet) consider that they are unaffected, while others (Babinski, Déjerine, and Raymond) hold that in this disease there is always a state of muscular hypotonus and a diminution or abolition of the knee-jerks. In some cases a diminution of reflexes was found to alternate with an exaggeration of reflexes. Nicollet has estimated that the tendon reflexes are absent in 88 per cent of cases of true chorea. Absence of reflexes has often been described in choreic paralysis. Babinski has stated that in some cases he has observed the phenomenon which goes by his name. Many observers have investigated the changes in the pupillary phenomena in this disease, with the result that inequality of the pupils, alternating myosis and mydriasis, and varying degrees of activity of accommodation of the two eyes, have all been described. It was with the idea of verifying the above findings that the present research was conducted. The authors only included in their series cases which presented rheumatic evidences, and rejected all those which showed hysterical stigmata.

In all, they examined 21 cases, with the following results:—In 7 cases the reflexes were absolutely normal. There was noted ten times conjunctival and pharyngeal anæsthesia, five times exaggeration of knee-jerks, two times diminution of the same, two times Babinski's phenomenon on both sides, and in one case on one side only (the choreic movements did not predominate on this side). In one case, in which the plantar reflex was absent on one side only, it was noticed that the chorea was most marked on that side. The pupillary reflexes always appeared normal.—LEONARD FINDLAY.

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Green's Encyclopedia and Dictionary of Medicine and Surgery. Edited by J. W. Ballantyne, M.D., F.R.C.P.E. Vol. X: Thiersch - Zymotic. Edinburgh: William Green & Sons. (15s. net.)

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Aids to Obstetrics, by Samuel Nall, B.A., M.B. Cantab., M.R.C.P. Lond. Revised by C. J. Nepean Longridge, M.D. Vict., F.R.C.L. Eng., M.R.C.P. Lond. Seventh edition. London: Baillière, Tindall & Cox. 1909. (2s. 6d. net.)

Guy's Hospital Reports. Edited by F. J. Steward, M.S., and Herbert French, M.D. Vol. LXII. London: J. & A. Churchill. 1908.

The Planning of Fever Hospitals and Disinfecting and Cleansing Stations, by Albert C. Freeman, M.S.A. London: The Sanitary Publishing Co., Limited. (7s. 6d. net.)

Diathesis and Ocular Diseases, by A. Maitland Ramsay, M.D. London: Baillière, Tindall & Cox. 1909. (3s. 6d. net.)

Medical Reports of the Central London Throat and Ear Hospital. Vol. I. London: Adlard & Son. 1908. (5s. net.)

Soured Milk and Pure Cultures of Lactic Acid Bacilli in the Treatment of Disease, by George Herschell, M.D. Lond. Ninth Thousand. London: Henry J. Glaisher. 1909. (1s. 6d. net.)

The Etiology and Nature of Cancerous and other Growths, by W. T. Gibson, A.R.C.S. London: John Bale, Sons & Danielsson, Ltd. 1909. (6s. net.)

Practical Guide to the Diseases of the Throat, Nose, and Ear, for Senior Students and Junior Practitioners, by William Lamb, M.D., C.M. Edin., M.R.C.P. Lond. Second edition. London: Baillière, Tindall & Cox. 1909. (7s. 6d. net.)

The Practice of Medicine, by the late M. Charteris, M.D. Ninth edition. Edited by F. J. Charteris, M.D. London: J. & A. Churchill. 1909. (9s. 6d. net.)

The Edinburgh Stereoscopic Atlas of Obstetrics, edited by G. F. Barbour Simpson, M.D., F.R.C.P.E., F.R.C.S.E., and Edward Burnet, B.A., M.B., Ch.B. With a Preface by Professor Sir J. Halliday Croom, M.D., F.R.C.P.E., F.R.C.S.E., F.R.S.E. In four sections, each containing 25 subjects, with descriptive text. Section III. London: The Caxton Publishing Company. 1908. (Price for the four sections, 84s. net.)

Surgery, Its Principles and Practice, by Various Authors. Edited by William Williams Keen, M.D., LL.D., and John Chalmers DaCosta, M.D. Vol. IV, with 582 illustrations, 22 of them in colors. London: W. B. Saunders Company. 1908.

A Text-Book of General Bacteriology, by Edwin O. Jordan, Ph.D. Fully illustrated. London: W. B. Saunders Company. 1908.

Principles and Practice of Physical Diagnosis, by John C. DaCosta, Jr., M.D. With 212 original illustrations. London: W. B. Saunders Company. 1908.

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GLASGOW.—METEOROLOGICAL AND VITAL STATISTICS FOR THE FIVE WEEKS ENDING 23RD JANUARY, 1909.

	Week ending				
	1908.	1909.			
	Dec. 26.	Jan. 2.	Jan. 9.	Jan. 16.	Jan. [illegible].
Mean temperature,	42·3°	35·6°	42·7°	38·5°	41·2°
Mean range of temperature between day and night,	28·5°	28·3°	17·6°	19·0°	19·0°
Number of days on which rain fell,	5	7	4	7	6
Amount of rainfall, ins.	0·25	0·05	0·74	1·92	0·88
Deaths registered,	244	309	326	295	309
Death-rates,	14·8	18·5	19·5	17·7	18·5
Zymotic death-rates,	1·8	1·4	2·3	2·2	1·9
Pulmonary death-rates,	4·2	4·7	4·8	5·6	5·7
DEATHS—					
Under 1 year,	47	72	71	61	63
60 years and upwards,	60	69	79	71	77
DEATHS FROM—					
Small-pox,	...	...	...	...	...
Measles,	1	...	1	...	...
Scarlet fever,	1	1	3	2	1
Diphtheria,	5	3	5	6	7
Whooping-cough,	16	20	25	27	23
Fever,	4	...	2	2	...
Cerebro-spinal fever,	...	2	1	1	1
Diarrhœa,	4	9	7	6	2
Croup and laryngitis,	...	1	...	...	1
Bronchitis, pneumonia, and pleurisy,	49	62	56	77	56
CASES REPORTED—					
Small-pox,	...	...	...	...	...
Cerebro-spinal meningitis,	1	2	2	2	2
Diphtheria and membranous croup,	38	21	27	31	35
Erysipelas,	30	19	31	24	25
Scarlet fever,	59	43	52	80	103
Typhus fever,	...	...	...	...	...
Enteric fever,	10	7	8	12	7
Continued fever,	...	...	1	1	1
Puerperal fever,	2	3	2	1	3
Measles.*	30	4	31	28	21

* Measles not notifiable.

SANITARY CHAMBERS,
GLASGOW, *27th January, 1909.*

THE

GLASGOW MEDICAL JOURNAL.

No. III. March, 1909.

ORIGINAL ARTICLES.

RECENT METHODS OF EXAMINATION OF THE NOSE AND THROAT.[1]

By JOHN MACINTYRE, M.B., F.R.S.E., M.I.E.E.,
Surgeon for Diseases of the Nose and Throat, Glasgow Royal Infirmary.

When I received the kind invitation of the members of the medical staff of this hospital to deliver an address at the beginning of the session, I felt that in view of the many acts of kindness conferred by them upon me in the past I could only accept it. While thanking them most gratefully for the honour conferred upon me, I am deeply sensible of the difficulty of the task which lies before me.

After careful consideration, I have selected for review, as far as the time permits, some of the recent improvements in diagnosis placed at the disposal of those engaged in this special department of surgery, and in choosing the subject of the recent methods of examination of the nose and throat I have been somewhat influenced by the fact that during the last twenty years it has been of interest to me personally, and also because of the influence which the study of chemistry and physics have had upon the history of medicine and surgery in general. It is, perhaps, no exaggeration to say that the clinical laboratories of to-day are becoming more and more great physico-chemical institutions destined to render the study of medicine and surgery something more akin to that of the exact sciences than it has ever been in the past.

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[1] An Address delivered on 16th October, 1908, at the beginning of the winter course of lectures at the Central Ear and Throat Hospital, London.

History of Older Instruments.

Perhaps the easiest way to approach our subject will be to refer to the history of the methods of diagnosis specially applicable to the nose, throat, chest, and œsophagus, for by this means we will be better able to compare what we mean by the more recent methods. That the diseases of these regions have interested students of medicine from the earliest times is well known, but it is also easy to understand that, as some of them were far removed from the surface of the body, considerable difficulty was experienced in examining them. Naturally, the cavities of the mouth and pharynx received first attention, and the works of older writers amply testify to the interest taken in diseases of these cavities as far as they could be investigated by direct examination by means of the unassisted eye or by digital examination. With the developments in pathology much was revealed *post-mortem*, but no real progress could have been made until it was possible to judge of them by inspection during life.

No doubt the idea, now proved to be erroneous, that the lower cavities, such as the larynx and trachea, could only be seen by reflected light proved a great barrier to progress; and yet, when we come to think of the simple but ever memorable invention of Garcia, we are apt to say that it is strange man took so long to discover such a simple procedure. Explain it as you may, the fact remains that the subject had been exercising men's minds. This is proved by the attempts of Bozini, Senn, Babington, Bennati, Baumès, Liston, and Avery, whose historical records show how seriously many had tried to accomplish what Garcia was destined to reveal. Such an instrument in the hands of Türck and Czermak as we know soon created a revolution of a far-reaching nature in this branch of clinical medicine and surgery, and their work, followed by that of Störk, Semeleder, Gerhardt, Lewin, Rauchfuss, Voltolini, Viktor v. Bruns, Valdenburg, Traube, Tobold, Mackenzie, Elsberg, Mandl, Moura-Bourillou, Fauvel, Oertel, Gottstein, Wilhelm Meyer, Navratil, Lori, Krishaber, v. Ziemssen, Schnitzler, Leopold v. Schrötter, built up the great art of modern laryngology.

The next development was in the direction of rhinoscopy. One can understand that the investigation of the larynx, trachea, bronchial tubes, and œsophagus were in the living subject at least not so easily attained, but it is a little difficult to understand why a cavity so easily investigated by direct light as the nostril should have remained so long neglected; and, indeed, it was only after the invention of the laryngoscope that the nasal cavity, especially in its posterior aspect, received due attention. I remember, over twenty years ago, when a student in the great University of Vienna, being particularly struck with the fact that of the thousands of cases passing through the surgeons' hands in that great centre, while the utmost attention was given to the details of the larynx, only a small percentage had the nostrils and naso-pharynx carefully exploited. Nowadays it is different, because the modern tendency is to begin with the examination of the patient from above downwards, and the nose with its accessory cavities, the epi-pharynx, pharynx, hypo-pharynx, larynx, trachea, bronchial tubes, and œsophagus are no longer considered as in any way detached, and must all be examined in succession. However, that from the earliest times in the history of medicine men must have attempted to see into the anterior part of the nostrils no one can doubt, and we know that Dionis as early as 1714 made a nasal speculum for the removal of nasal polypi. Yet we have to wait until the middle of the nineteenth century before attempts were made to make a regular examination of the nasal cavity by Markusovzsky. At the time that the laryngoscope was creating intense excitement in Vienna and Budapest, we see the first serious attempts to explore the nasal cavity thoroughly by Czermak and Voltolini. Later on, the work of Thudicum, Duplay, and Fränkel proved that anterior rhinoscopy had been fully established. Median rhinoscopy is suggested by Wertheim as far back as 1807, because he introduced a small tube provided with a steel mirror directed upwards and with a window like that in Avery's laryngoscope —his so-called conchoscope. Voltolini devised methods, however, to attain this end, and we know that Killian has introduced certain instruments in the hope, in some cases, of showing the middle part of the cavity. Zaufal, as far back as 1875, as we know, used a funnel-shaped speculum to pass entirely through the nasal cavity, and many workers recorded their appreciation of the advantages of the instrument.

While Bozzini, Baumès, and others thought of examining the posterior nares by means of a mirror directed upwards, the practical application of the method was first fully demonstrated by Czermak, whose work was published in 1859. Semeleder, Stoerck, Türck, and, above all, Voltolini, followed, and we all know the great results which followed the systematic work of the last-named writer.

The history of œsophagoscopy is also of extreme interest. The first attempts to overcome the difficulty found in the visual examination of the gullet were made by Semeleder and Stoerck, with negative results. It is to be noted for our purpose that Stoerck's instrument was a tube, and that the laryngeal mirror was placed on the top of it when once it was *in situ*. Waldenberg also made an attempt at an instrument, using the laryngeal instrument while his slightly conical tube was in position. Stoerck attacked the problem later on, and introduced a lobster-jointed tube covered with indiarubber, but again the mirror was used at the top of it, and we are all familiar with the ingenious skeleton tube of Mackenzie's, built upon the same principle. In 1881 we find Mikulicz experimenting with the electric endoscope of Nietze to examine the interior of the œsophagus by means of the mirror with the electric light introduced into the cavity, and we also know that at the period referred to hopes were entertained that this instrument would demonstrate the interior of the tracheal walls. Mikulicz succeeded in making practical instruments, and shortly afterwards v. Hacker, with others, successfully engaged in this study. Yet, strange to say, not one of the cavities, with the possible exception of the epi-pharynx examined by means of the reflected mirror, was inaccessible to investigation by direct illumination, as recent work has shown. Not that I think every patient is ever likely to be subjected to the passage of such tubes, however ingeniously contrived: on the contrary, the comfort with which a pharyngeal or laryngeal examination can be made by means of a mirror placed at a suitable angle to the stem of the instrument will doubtless secure a permanent place for the ordinary pharyngeal and laryngeal mirrors.

If we ask ourselves what stood in the way of our modern methods of exploration, which, after all, are the simplest, or, in other words, why were such important things so long delayed, the answers are doubtless many, but three stand out to my mind. In the first place, because we find, as in every department of human industry, progress is comparatively slow, and even after the way has been opened up, we can only improve step by step as collective experience is gained. The second important factor, however, has to be sought in the tremendous stride which has been made in this as in other departments of surgery by the introduction of general anæsthetics. In other words, Morton and Simpson and others had to appear before our work could make the most advanced progress. Speaking as a laryngologist, however, it is hard to overestimate the introduction of local anæsthesia by the use of cocaine, for which we are indebted to Julinek. Dexterous as may have been the workers in our department previous to that date, local anæsthetics placed us in a position of advantage, without which it is difficult to perceive how we could ever have succeeded. In the third place, and this is what greatly interests us to-day, physical science gave us what I consider one of the greatest boons, namely, the incandescent lamp. I am showing you on the screen a number of pictures illustrating a paper published by myself in the *Glasgow Medical Journal* of January, 1895, and from these you will see that at that time I applied the incandescent lamp to the nasal speculum, buccal and pharyngeal instruments, the posterior nares, and the laryngeal mirror. These, I believe, were the first published in this country. Why did the incandescent lamp of that day not lead to more rapid developments? To a large extent because the lamps were not suitable; they heated, and required a current of water to circulate round them to keep them cool, and the life was short owing to imperfect manufacture: in fact, they were scarcely practicable. The fact is that we were well into the last decade of last century before we could get the instrument makers in this or any other country to take up the commercial side of the aspect, and give us good surgical lamps. It is impossible for outsiders to conceive how much we suffered in our special department from this difficulty.

DIRECT INSPECTION OF THE CAVITIES.

By the year 1895, however, collateral science had done much to facilitate our work, and from that period until to-day our special department has made such important strides in the physical examination of the upper respiratory passages and the œsophagus that the year referred to may be looked upon as the beginning of a new period or chapter in their history. In 1879 Reichert showed that, by applying pressure to the base of the tongue and the median glosso-epiglottic ligament, we could elevate the epiglottis, thus leading to greater results in the hands of Kirstein.

The latter, taking advantage of Reichert's principle, showed us that the reflecting mirror was no longer necessary if we only cleared away the parts in the region of the base of the tongue and epiglottis. He proved, in other words, that we could directly inspect the larynx and part of the trachea. What helped him in his method? He plainly tells us that all stationary appliances of illumination are of no use, or at least of little value, because the operator must be free in his movements and independent of the reflecting mirror. Hitherto we depended upon sunlight or some artificial source,

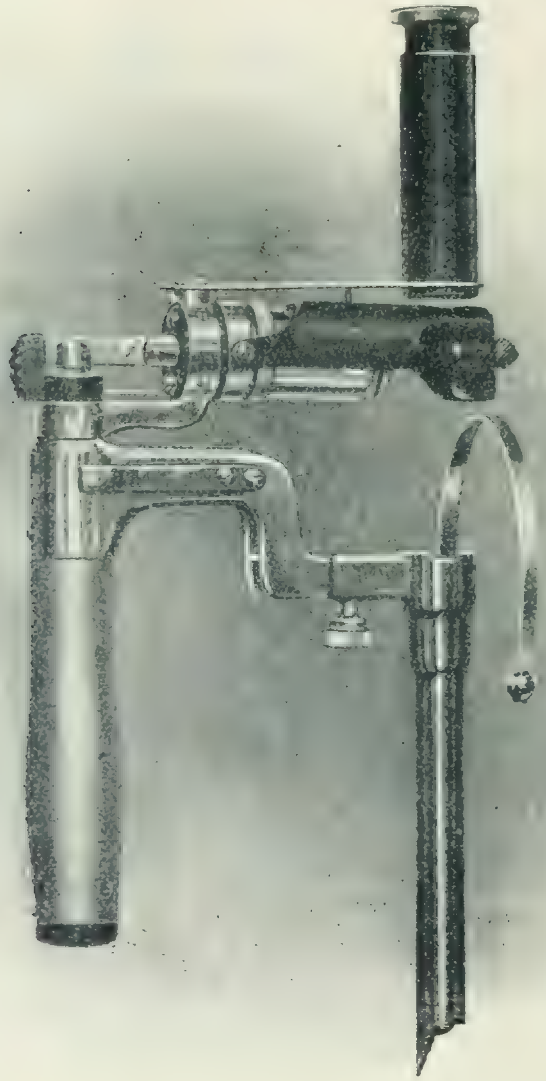

Fig. 1.
Bruening's instrument.

but with the aid of the incandescent lamp placed upon the forehead, such as had long before been produced by Trouvé, all difficulties would disappear. Further, Caspar had produced an electroscope for the examination of the urethra, in which the incandescent lamp was placed in the handle, and reflected at the proper angle by means of a small prism. By one of these two methods Kirstein established a new and

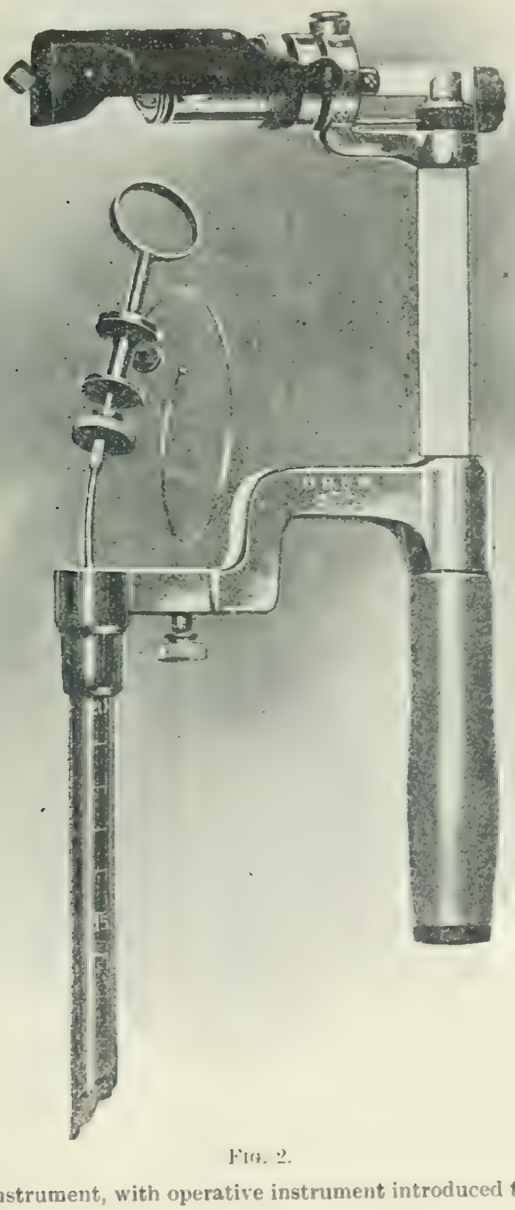

FIG. 2.

Bruening's instrument, with operative instrument introduced through tube.

important development of immense value, and Mikulicz, as we have already seen, depended upon similar arrangements, and also dispensed with stationary illuminants.

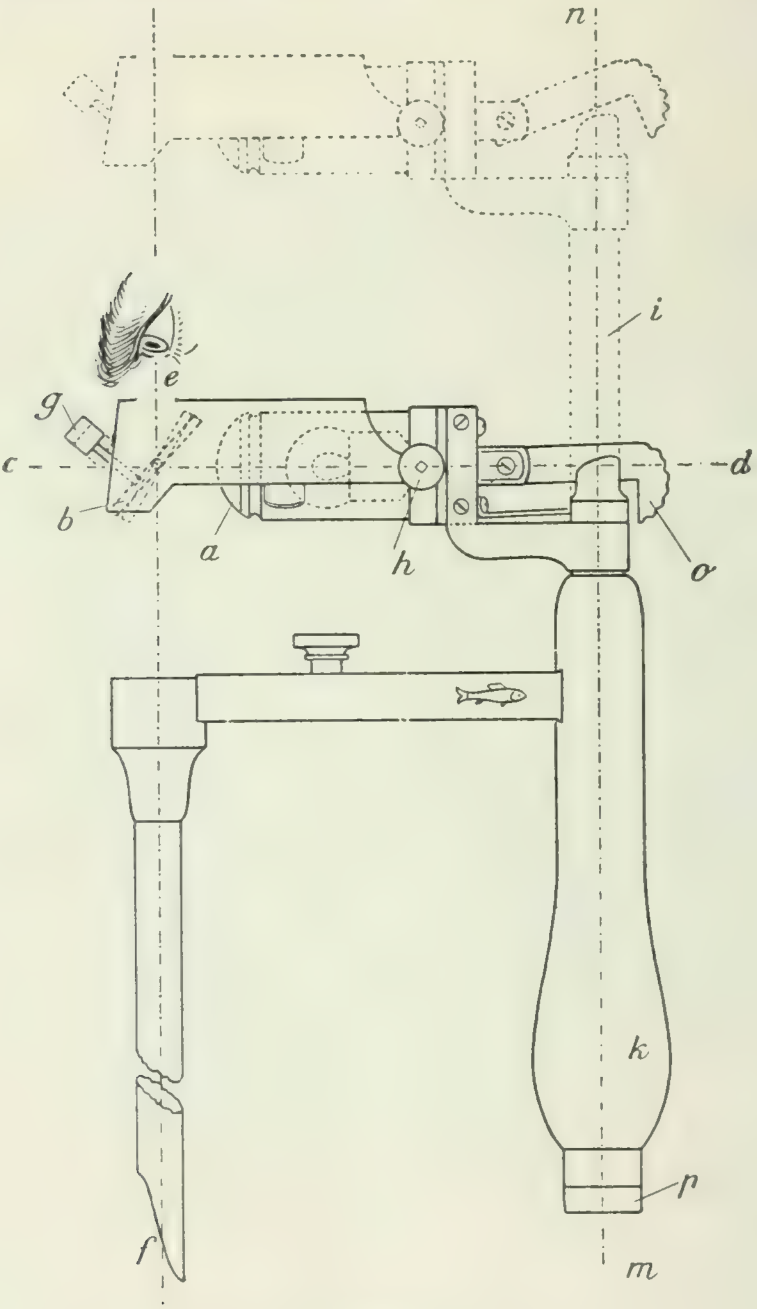

FIG. 3.

Section showing illuminating arrangements.

The next striking development was in 1897-98 when Killian in his historical publications demonstrated that, by means of suitable tubes passed into the larynx, trachea, and even the

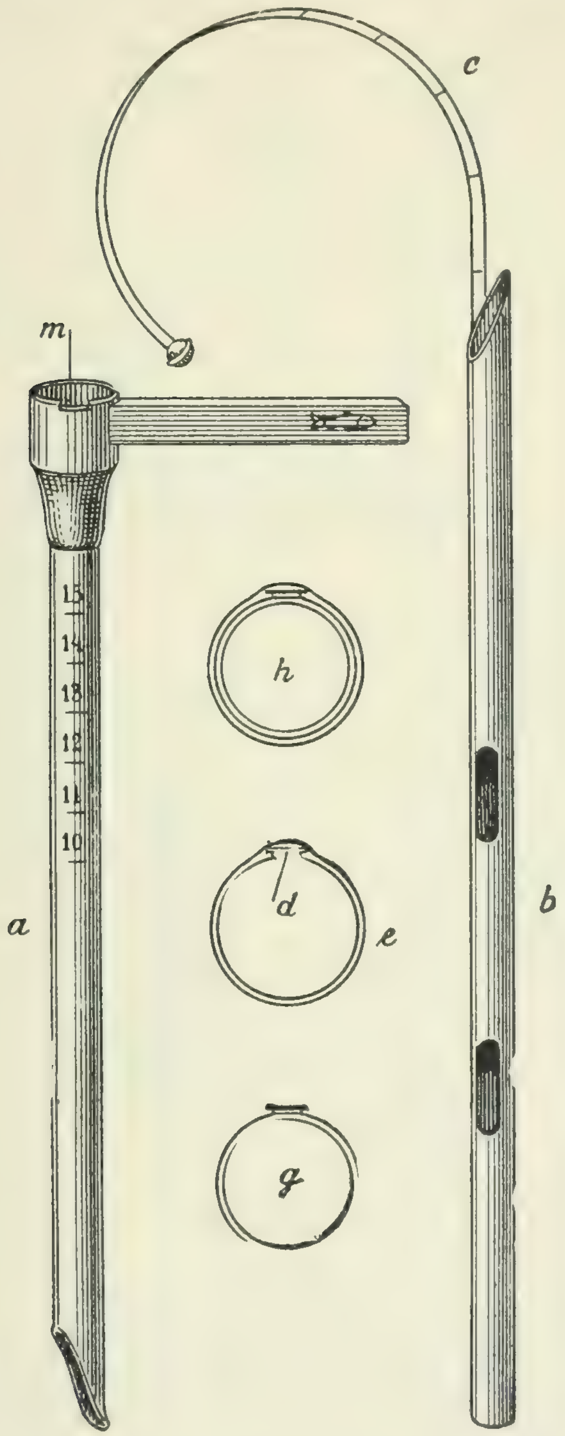

Fig. 4.

Bruening's tubes, showing method of extension.

larger bronchial tubes, it was comparatively easy to examine these passages by direct linear inspection. I have placed before you examples of all the instruments referred to as designed by the original inventors, but I wish still further to emphasise the importance of the incandescent lamp by also showing you some of the subsequent developments. That the illumination by Killian adopted in his first instrument was not as satisfactory as it might have been is shown by the attempts of others. Professor von Schrötter devised a comparatively simple instrument in which four small electric lamps were placed on the upper end of a glass tube, but between them and the tube was placed a prism so that the light might be reflected and carried on a well-known principle to the lower extremity of the tube. The disadvantages of this instrument lie in its construction, as the instrument makers will tell you. Further, it required the same illuminating arrangements for every instrument, while Kirstein's method could be applied to a series of tubes. The most advanced instrument, and one of a much simpler nature embodying all the advantages of Killian, will be seen in the next instrument which I show you, made by Bruenings. He has reduced the number of tubes required for the examination of the trachea and œsophagus by employing an old and well-known principle,

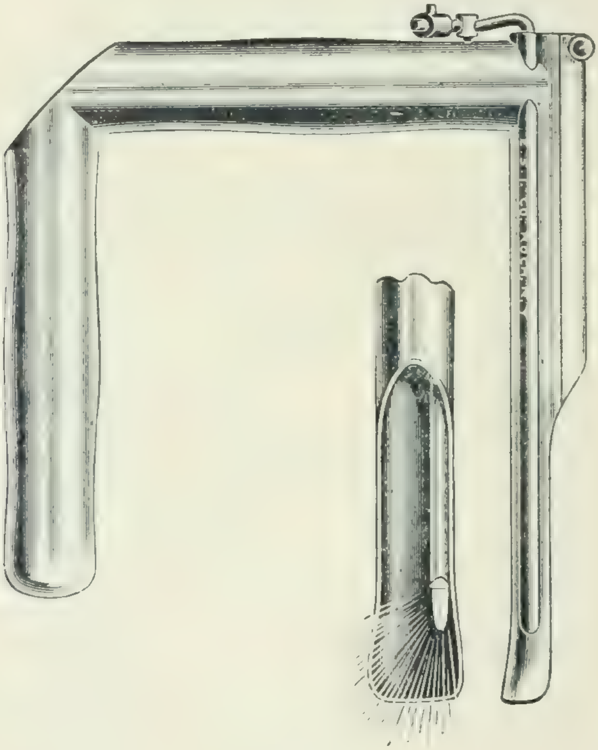

Fig. 5.

Chevalier Jackson's handle and introducer, with lamp in position.

viz., by allowing one tube to slide inside another and so obtaining length. The incandescent light in the handle of the instrument is extremely ingeniously arranged, and he owes much to an almost perfect incandescent lamp from which the rays start from a point and not from a coil of filament like most others. Every one can grasp the importance of this who is familiar with the simplest principle of optics.

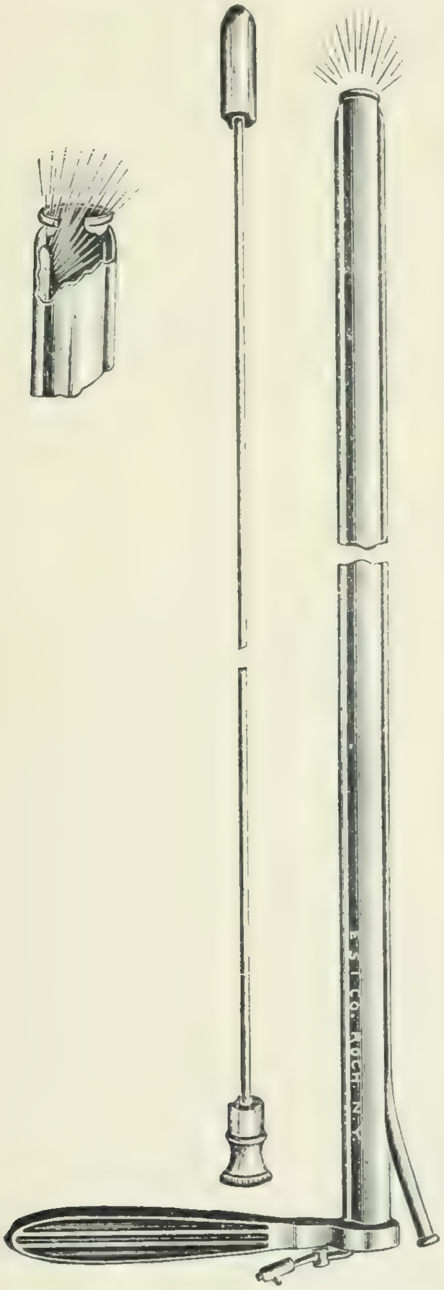

Fig. 6.
Chevalier Jackson's arrangements, with lamp at distal end of tube, with guide.

Chevalier Jackson, whose great success in the examination of the respiratory tract and œsophagus, and even the stomach, adopted another plan. In his instruments an exceedingly small and yet excellent incandescent lamp is introduced so as to be placed at the extremity of the instrument inside, and not near the eye of the observer. The disadvantage of this instrument is that the lumen of the tube is to an extent interfered with by the light carrier inside the tube, a fault which is still more apparent in the tubes of smaller dimension.

In the instrument which I next show you, devised by myself, I have tried to simplify this arrangement still further, and you will see that as arranged it combines many of the advantages of others. The full description and results of this instrument will be published shortly.

Transillumination.

The incandescent lamp has helped us in other ways. Every worker in laryngology knows that by transillumination, say in a case of the antrum of Highmore, we can get information of the most important kind. Whatever doubt has been thrown upon the original work of Voltolini, the subsequent observations of Heryng, Luc, Rualt, and Logan Turner tend to show that in the maxillary cavities at least we have in transillumination a valuable aid, not to mention the later method —Eckstein's method of retro-maxillary illumination. It is almost certain that the method of transillumination is destined to be further improved: and here is an instrument devised by myself, which I am in the habit of using, and which consists of a lamp placed between two reflecting mirrors which sends an equal number of rays through the maxillary portion of the palate, and in this way there is not the confusion of the illumination from the nasal walls of the cavity. Indeed, for methods of accurate examination I often place a metallic shield inside the nasal septum so as to prevent this. Further, I am convinced that by the small lamps used by Chevalier Jackson we can often get important information in the regions of the ethmoid and turbinated bones, but this we have no further time to discuss to-day.

Transillumination of the frontal sinuses may not give us such valuable information, but, as we will see further on, in conjunction with the Roentgen rays they will doubtless be more employed in the future. To a limited extent the same remark might be made about the method of transillumination of the larynx when the incandescent lamp is placed in front of the organ and the laryngeal mirror introduced into the mouth with a view to detecting differences in density of the tissues in cases of infiltration of the laryngeal submucous tissues.

I have brought with me to-day, for inspection of those who are interested in the subject, the following instruments:—(1) The instruments required for the transillumination of the frontal, maxillary, and ethmoidal sinuses, including those of Voltolini, Jackson, Eckstein, and my own; (2) the instruments required for direct examination of the nose—anterior, median, posterior, *i.e.*, the epi-pharynx; (3) the instruments employed in the direct examination of the buccal, pharyngeal, hypopharyngeal, laryngeal, and tracheal regions, including those of Kirstein, Mosher, v. Schrötter, Chevalier Jackson, Bruenings, and my own; (4) the instruments used in the examination of the œsophagus, including those of Mikulicz, v. Hacker, Chevalier Jackson, and my own.

X-RAYS.

The next important development which claims our attention is the introduction of *x*-rays, and the importance of the study of these I hope to make clear to you before this demonstration is finished. From what I have stated, it will be easily seen that as far as direct or reflected light is concerned we might state in general terms that there has been a process of gradual evolution, but this is not the case with *x*-rays. The year 1895 will be ever memorable in the history of surgery as well as in general science by the brilliant discovery of Professor Roentgen. The discovery burst upon an astonished world, and all workers in every department had an entirely new agent placed at their disposal. It was left to the physician and surgeon to apply it at the bedside, and naturally in the examination of the bones the surgeon had an advantage in the first place. It would be a profound mistake, however, to think that the soft tissues could possibly be neglected, and we now know that the examination of the internal organs come within the scope of the radiographer to an extent which was scarcely realised ten years ago. That it has been largely used is proved by the fact that every well-equipped hospital has to-day its Roentgen apparatus or laboratory.

By this new agent, either by a photographic process or by the indirect method of the fluorescent screen, which enables us actually to see the shadows of the organs, or by means of the orthodiagraph, an apparatus for recording diagramatically what the screen shows us, results can now be obtained of immense value to the physician as well as to the surgeon. In some directions, especially in the earlier stages of the discoveries, examination of the respiratory tract and the œsophagus by direct vision, and the investigation of the same regions by means of the *x*-rays, were thought to be two methods which to an extent rivalled each other. That is not the case, however: they are in the strictest sense complementary the one to the other, because while by the direct methods of observation we can only see the surfaces of the mucous membranes or what is lying in the cavity, by the application of the other, the radiograph or the fluorescent screen, we judge of conditions in the tissues themselves as well as in the large cavities of the body. I need hardly say to you that the examination of the chest, the neck, the pharynx, nose, and accessory sinuses must be of the greatest importance to anyone engaged in our special department.

Let me remind you, in the first instance, of what took place. Early in 1896, in a number of illustrations which I gave to the British Laryngological Association, the Royal Society, and elsewhere, I showed that it was possible to photograph the soft and hard tissues of the larynx as well as the cavities in the chest, and for purposes of comparison I have brought with me a number of pictures showing the larynx, spine, heart, foreign bodies in the respiratory region and œsophagus, all of which were the first ever published. I need not report the steps by which improvements were gradually made, but I should like to point out that as early as 1896, I showed that it was possible to take instantaneous pictures of the body. The success of the principle I have from the first maintained depends upon the fact that where we wish great penetration and rapid action upon the photographic plate, a great amperage is necessary, and this fact I again wish to emphasise by the experiments which I intend to show you to-day, thanks to the kindness of Mr. Schall, to whom I am very much indebted for bringing together the necessary apparatus.

By the year 1900 I was able to take instantaneous photographs of the larynx, chest, and œsophageal regions. In 1902 Professor v. Ziemssen and Professor Rieder published an atlas showing the advantages of *x*-rays in internal medicine, and established beyond all doubt that instantaneous *x*-ray photographs of the body were quite possible. Many of these photographs I have brought with me for your inspection. The process was at first expensive, and is so to this day, but owing to the great improvement in apparatus it has been shown to be quite practical by Dr. Groedel, assisted by Mr. Horne. Not only are the pictures taken in the fraction of a second more exact, but we can take them at a greater distance from the body, so that the use of the orthodiagraph is no longer as great as it formerly was.

The technique will be explained later on, and need not be here dwelt upon too fully. I would not have you imagine, however, that the ordinary photographic process is without its merits; on the contrary, I am persuaded by a careful examination of the patient on the screen, and by arranging the vaccuum to suit the particular case, refinement in shadows, say of early deposits of tubercle, can at present be better obtained than by instantaneous picture. That at least is true in some cases, and I maintain there is a place for both methods.

I will now throw upon the screen a number of photographs by way of illustration. The first series will show the apparatus used in my own laboratory, and which has been fitted up more with a view to what is required in private; while others will show you the arrangements in connection with hospitals, as arranged in the Glasgow Royal Infirmary at this day. The second series of photographs will show you what progress has been made in taking pictures of the nose and accessory cavities. The first of these, taken as early as 1896, clearly indicates what was to follow. The next set of pictures in this series will show the normal conditions, and a careful examination of these will reveal the fact that the whole interior of the antral cavities, with the frontal, maxillary, ethmoidal, and even the region of the sphenoidal sinuses, can be made out, as well as the bony structures within and around the nasal cavities themselves. Many of these pictures have been taken instantaneously. With a view to showing you what has been recently done, I have brought also for your inspection the splendid atlas of Küttner, of Berlin, and a careful study of this will reveal what can be done by means of radiography in the region of the nose and accessory sinuses. The next set of pictures in the series will show pathological conditions, such as neoplasms, the presence of pus, and hypertrophies.

I would here introduce a word about the advantages of stereoscopic photography, which has never been thoroughly appreciated. You will not misunderstand me and think that I am showing the slightest disrespect to Messrs. Ziemssen and Küttner when I say that excellent and all as their photographs are, much is lost for want of stereoscopic productions.

The study of the stereo-radiogram of the nose and accessory sinuses which I have placed upon the table for your inspection will, I hope, make this abundantly clear. I said in the earlier part of this lecture that it was doubtful if much light could be thrown in most cases upon the conditions of the frontal sinus by means of transillumination, but a study of the radiograms which I am placing before you to-day will convince anyone that a careful examination of the frontal sinus before operation by both methods will repay any surgeon.

The next series of photographs will show many conditions to be found in the interior of the thorax which no laryngologist can afford to ignore. These include enlargements of the heart, aneurysm, malignant disease of the œsophagus, enlarged mediastinal glands, pleuritic effusion, empyema, and, above all, early and late deposits of tubercle. Of course, some will say that these belong to a large extent to the region of the physician. Precisely, but may I remind you of how much the specialist has been blamed for forgetting the general conditions of the body, and for taking too narrow a view of a case. How are we to differentiate between such conditions as malignant disease, tubercle, or syphilis, or paralysis of the recurrent laryngeal nerves due to an aneurysm or mediastinal tumour, if the conditions of the chest be neglected? My experience has been that *x*-rays will often reveal what cannot otherwise be detected. Moreover, by the introduction of bismuth or metallic sounds, the existence of pouches in the œsophagus, or the presence of a stricture in this organ, may be demonstrated as can be done in no other way.

The next series of photographs represent the sphere in which *x*-rays first of all, and in the most extensive way, have been employed in our special department—I mean the detection of foreign bodies. Those I have brought to show you will indicate the presence of foreign bodies in the nose, accessory sinuses, the pharynx, larynx, trachea, bronchial tubes, and œsophagus, illustrating, as you can see, the presence of false teeth, bones, needles, coins, glass tubes of feeding bottles, studs, shells, and, in fact, nearly every known substance which by its density can be detected by means of *x*-rays.

RESULTS.

Briefly stated, therefore, what is meant more particularly by recent methods of diagnosis includes for the most part what has taken place from 1895 as contrasted with what took place after the introduction of the laryngoscope and before that year. It might be summed up by saying we mean the methods of direct inspection of the cavities and passages with which we have dealt: to a certain extent, also, with transillumination: and, lastly, the x-rays, whether by means of the radiogram or fluorescent screen.

With regard to the first-mentioned, namely, direct inspection of the passages, at first it was thought that its great use would be found in the detection of foreign bodies, but recent work has shown that not only will this be the case, but it is certain to reveal much hitherto unknown about the morbid conditions present in inflammatory affections, neoplasms (simple or malignant), tubercle, specific diseases, and their sequelæ. No one who has perused what will become a classical work, namely, that of Dr. Hermann v. Schrötter, of Vienna, can fail to subscribe to this statement, and the same may be said of the work of many of those whose names I have already mentioned in this address.

Speaking of transillumination, I am convinced that in the nasal cavities at least, and in conjunction with the x-rays, it will play a more important part in our studies that we have hitherto suspected.

With regard to the x-rays, it is not too much to say that their importance has not yet been fully realised. That they have done much, and will do more, in the study of normal anatomy no one can doubt, whether we regard the subject from the embryological or mature structure; and the study of diseased conditions of the bones and injuries has already reached a level not hitherto attained. Further, during life the explorations of the cavities by means of dense fluids, such as bismuth or metallic sounds, will yield great important results in the study of the nose, trachea, and œsophagus.

Not only has anatomy gained much, and may gain more, but much will be done to facilitate the study of physiology, as shown by the work of Merkel and Brücke in the study of the movements of the parts in speaking: also by the work of Zwaardemaker, Scheier, Mendelsohn, Gutzmann, and others in functions of deglutition. I need hardly remind your that the study of the movements of organs such as the diaphragm, the heart in normal conditions as well as in morbid, also the conditions present in pleurisy, emphysema, empyema, aneurysm and new growths, by comparison, has already helped much in the study of physiology.

With regard to the formation of pus in cavities, I think the photographs shown to-day will prove that in the regions of the frontal sinus, antrum, and thoracic cavities much valuable information can be obtained. Of the chest, I need only say that ever since Buchert, in 1896, published the results of his study of tuberculosis in the lungs, physicians and surgeons have been much indebted to many experimenters, and I have no hesitation in saying that the early diagnosis of tubercle is often made by this method when it would be difficult to do so without the aid of x-rays. Again, the presence of pleurisy, emphysema, empyema, enlarged heart, aneurysm, and thoracic malignant disease are now detected and recorded with a facility and success which few could have expected a few years ago.

When we come to the questions of foreign bodies, no one has the slightest doubt that direct inspection of the passages and the complementary method of investigation by means of the x-rays have yielded results hitherto quite unattainable. The work of many workers in every clinical centre in the world proves this. Within the last twenty months over 150 cases of foreign bodies have been sent to the Glasgow Royal Infirmary, and I have no hesitation in saying that without one or other or both of these methods it would not have been possible to have removed these foreign bodies with the ease, safety, and success which have resulted. Not only so, but graver operations, such as tracheotomy and œsophagotomy, are becoming much less frequent, and cases of laceration, like other troublesome sequelæ, not to speak of the loss of life, have already been, and will in the future become, less frequent than hitherto.

It was my good fortune and privilege for a number of years to have much assistance from, and frequent communication with, the late Lord Kelvin. In conversation with him one day he said nothing pleased him more, nor gave him greater pleasure, than to reflect upon the efficient condition of medical training in the present day, because no sooner was a discovery made in the physical or any other laboratory, than it became evident that in every school of medicine we had a number of workers ably educated and capable of applying it at the bedside. Indeed, in many instances, he added, it appeared as if the medical man took the discovery out of the hands of the physicist and applied it to the relief of human suffering before the discoverer himself had time to appreciate its importance or to investigate its nature. I have already said that in our special department so great has been the change that many of the chapters in our text-books will have to be rewritten, and when these are read let us hope that the judgment of the surgeons of the future will justify the claim that, in the regions of the respiratory tract and the upper alimentary canal, those engaged in these special departments will have shown that they were desirous at least of taking advantage of any and every scientific advance which the collateral sciences placed at their disposal.

A CASE OF HODGKIN'S DISEASE.[1]

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AND

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THE patient, A. M., a man, was admitted to Ward 31 of the Western Infirmary, Glasgow, on 15th August, 1908. The chief features of the case were the presence of tumour masses, evidently of glandular origin, in the axillæ, in both sides of the neck, and in the right groin; distinct anæmia, and considerable enlargement of the spleen. When these and the other clinical facts about to be detailed were considered in the light of the history, &c., a provisional diagnosis of Hodgkin's[2] disease, or lymphadenoma, was made: and in order to make this diagnosis absolute, it was proposed to remove, under a local anæsthetic, one of the small isolated nodules. The patient would not consent to this at the time, and believing that little could be done to cure him, he left the ward within forty-eight hours. He was induced, however, to return on 31st August, for the purpose of having one of the small affected glands removed, but was so ill when admitted that it was deemed advisable not to interfere. He remained, however, in the hospital, and, gradually becoming worse, died on 6th September. The *post-mortem* examination by Dr. Teacher confirmed the diagnosis, and rendered the case interesting from the pathological as well as the clinical point of view.

The clinical facts were fully recorded by Dr. Stewart, the house physician, in two reports corresponding with the two admissions of the patient on the 5th and 31st of August. These records are here incorporated in one statement, occasion being taken from time to time to point out in what way the symptoms agree with those commonly found in Hodgkin's disease.

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[1] Read at a meeting of the Medico-Chirurgical Society of Glasgow held on 6th November, 1908.

[2] Hodgkin's communication, entitled "On Some Morbid Appearances of the Absorbent Glands and Spleen," was made to the Royal Medico-Chirurgical Society of London, in 1832. This paper is accessible as a reprint in Vol. 173 of the New Sydenham Society publications, a volume which contains also a short biographical notice of this physician.

Early history.—The only fact elicited which is worthy of notice is that as a child the patient suffered from abscesses on both sides of the neck. These required surgical treatment, and were no doubt of a tuberculous nature, as indicated by the character of the old scars present in the neck. It is possible that the tuberculous affection of the glands may have proved a predisposing cause. This has been found in other cases to have preceded the onset of lymphadenoma.

Family history and social condition.—The family history obtained was very meagre. The patient was one of a family of twelve, of whom little information could be obtained beyond the fact that four were well. The father died at the age of 56, cause unknown. The mother was still alive and well at the age of 66. The patient was married, and had seven children, one of whom died of pneumonia complicating measles. The others were well. There was no evidence of past syphilis, a history of which was ascertained to be present in three cases of Gowers.[1] The social condition of the patient was poor. He lived in a house of one room and kitchen with his wife and six children, and worked indoors as a cabinet-maker ten hours per day. He states that he was well supplied with food, was a total abstainer, but smoked fairly heavily.

History of the present illness.—The first of the glandular swellings appeared as a small hard lump in the right axilla twelve years before admission. This slowly but steadily increased to the size of the patient's closed fist, and represented the largest of the superficial swellings. Six years afterwards the glands on the right side of the neck became affected. Four years later—that is, two years before admission—the large mass in the right axilla softened, broke, and discharged some pus and blood. Since then, one or two sinuses persisted, and discharged some purulent material from time to time. No further involvement of the glands occurred until three months before admission, when the glands in the left side of the neck, the left axilla, the front of the right side of the chest, and the right groin became affected almost simultaneously. Six weeks before admission other symptoms set in, the chief of which were anæmia, gradual failing strength, increasing difficulty of breathing during exertion. Shortly after this he was forced to take to bed more or less constantly.

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[1] *A System of Medicine*, edited by J. Russell Reynolds, vol. v, 1879, article "Hodgkin's Disease," by W. R. Gowers, M.D., p. 311.

There are some points of interest in the above history. A minor one is that the glands in the right axilla were earliest affected, whereas it is more common to have those in the neck first involved, probably from the fact that they are nearer local sources of irritation in the mouth and throat, which may act as predisposing causes. A more interesting point is the early date at which these glands in the right axilla were first affected. It is not common to have such a long history for the affection. Gowers[1] states that of fifty fatal cases where the duration could be fixed with accuracy only four appeared to have lasted for more than four years. In cases of long duration the affection usually remains limited to the glands first affected for many years, then the tendency is for the affection to become more generalised, and shortly after there appear the constitutional symptoms. This course of events can be recognised in this case, as six years intervened between the involvement of the glands in the right axilla and the right side of the neck, and practically a similar period intervened before the more general involvement of the other superficial groups of lymphatic glands, a condition which was followed in a few months by the constitutional symptoms.

This statement, of course, refers to the superficial glands. No doubt a concurrent involvement of the deep-seated glands took place also; but there were no indications of this in the history.

Condition on admission.—The patient had evidently lost considerably in weight before admission. He weighed only 8 st. 11½ lb. He was distinctly cachectic in appearance, but there was neither bronzing of the skin nor evidence of jaundice, symptoms which arise when the deep-seated abdominal lymphatic glands involve the solar plexus or press on the bile ducts. Over the front of the right side of the thorax and upper part of the abdomen the skin was smooth, glazed, and pitted on pressure. This localised œdema was evidently due to obstruction to the lymphatic and venous flow, no doubt in part due to the enlarged glands within the thorax. Later on the œdema became more generalised, but the parts first affected remained most so throughout the illness.

With regard to the superficial glandular swellings (Fig. 1), the largest was in the right axilla. It was oval, lobulated, firm in consistence, painless, the size of the patient's closed

[1] *Loc. cit.*, p. 339.

fist, and movable on underlying structures. The skin, too, was movable over it, except at two places where ulceration had occurred. Of these places, one was closed, but the other was still discharging a small quantity of sero-pus. At no point could fluctuation be detected. In front of the right side of the thorax, outside and below the right nipple, were some small pea-like nodules, which were hard, painless, and freely movable in all directions.

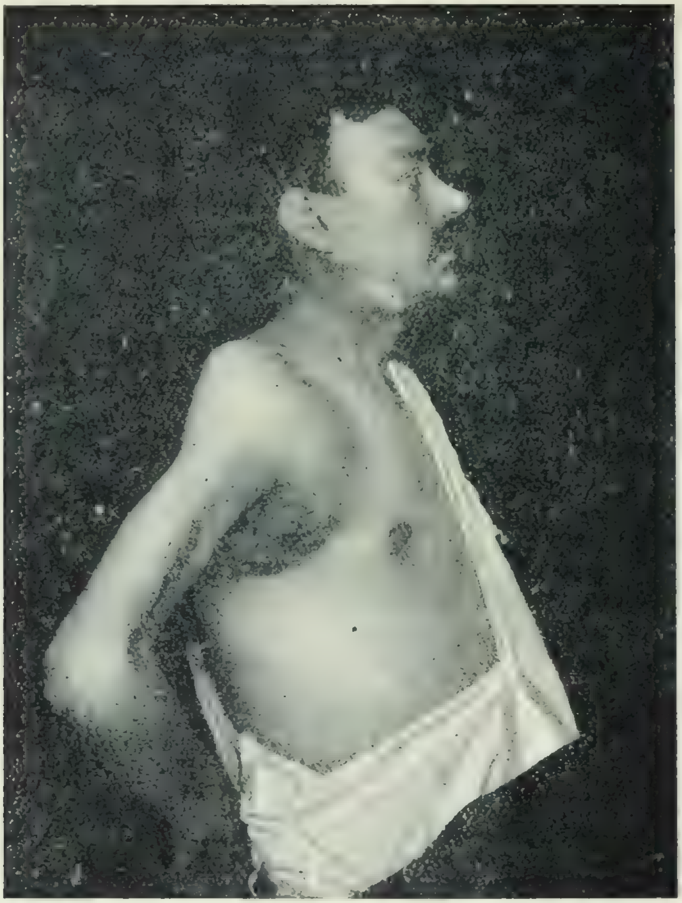

FIG. 1.

Patient A. M.; showing glandular swellings on right side of neck and in right axilla.

In the left axilla there was a mass the size of a pigeon's egg, along with several pea-like nodules. One similar to the latter was found situated outside the left nipple. Many were present also in the posterior triangle of the left side of the neck, and in the anterior and posterior triangle of the right side. These swellings in the neck were not large enough to cause any displacement of the trachea, nor give rise to any other pressure symptoms. Two or three small nodules were also to be felt in the right groin, but none could be felt in the left.

The slow widespread involvement of these various groups of superficial lymphatic glands in the way described, and the character of the enlargement, especially as seen in the smaller swellings, corresponds very well with what usually occurs in Hodgkin's disease. The firmness, mobility, the absence of tenderness and pain, and of any tendency to soften and break down, are quite characteristic, though these characters may be somewhat modified in these cases of lymphadenoma where the enlargements are of rapid development. Further, the enlarged glands here, as usually in lymphadenoma, have little tendency to become adherent to one another. This may occur, however, late in the course of the disease from periadenitis and extension of the growth from one gland to another, and thus produce a mass such as was found in the right axilla. By the above characters the glandular swellings of lymphadenoma may be differentiated from those due to tuberculosis and lymphosarcoma, by the latter being meant a primary sarcoma of the lymphatic glands. The softening and discharge that took place from the mass in the right axilla was confusing, but a tuberculous lesion may co-exist with, or precede, lymphadenoma, and the latter was probably the explanation in this case. Apart from the character of the swellings themselves, the slow and general involvement of the various groups of glands over many years was sufficient to exclude lymphosarcoma.

The *spleen* was considerably enlarged and extended down under the costal arch as a palpable tumour to nearly the level of the crest of the ilium. The surface was apparently smooth. This enlargement was quite in accordance with what may be found in Hodgkin's disease, but it raised the question of leukæmia. Although considerable, it was small compared with what may be found in myelogenous leukæmia, in which case, too, the lymphatic glands are not enlarged. In lymphatic leukæmia both spleen and lymphatic glands are enlarged, but the increase of the latter is a late event in the disease, and secondary to the enlargement of the spleen. In this case the affection of the glands was the earliest recognised sign of the disease.

The examination of the *blood*, however, excluded both forms of leukæmia. The diagnostic value of this will be referred to immediately. As already pointed out, anæmia was present as a symptom before admission, and was very evident from the pallor of his skin and labial and conjunctival mucous membranes.

The blood was examined by Dr. Stewart on two occasions —when the patient was first admitted and again on the 2nd September—with the following results:—(1) The red cells numbered 3,750,000 and the leucocytes 20,000 per c.mm., while the hæmoglobin was 50 per cent, giving a colour index of 0·6; (2) the red cells numbered 4,060,000 and the leucocytes 20,000 per c.mm., while the hæmoglobin was 64 per cent, giving a colour index of 0·8.

The anæmia here was well marked, and, as usual in Hodgkin's disease, was of the chlorotic type. The microscopic examination of dried films treated by Jenner's stain showed slight variation in the size of the red cells, but practically no poikilocytosis and no nucleated forms—characters also quite in conformity with what is usually found in lymphadenoma. In both examinations, as stated above, the leucocytes numbered 20,000 per c.mm. The following is the differential count given in percentages:—(1) Polymorphonuclear cells, 88; lymphocytes, 7: and larger hyaline cells, 5. (2) Polymorphonuclear cells, 95: lymphocytes, 3: and larger hyaline cells, 2.

These figures showed the presence of a distinct leucocytosis due to an increase of the polymorphonuclear cells. A leucocytosis is not an essential feature of Hodgkin's disease, but it often occurs, and is then commonly of the type found here. The small number of lymphocytes present exclude lymphatic leukæmia: and the absence of myelocytes, as well as the enlargement of the lymphatic glands, excludes the myelogenous form.

In the examination of the *pulse* the superficial vessels were found to be normal, the pulse was regular in force and rhythm, of low tension, and numbered during the first period of residence between 96 and 132. There was no irregularity, as is sometimes produced by pressure of the enlarged cervical glands on the vagus nerve. The pulse later on towards the fatal termination became slower and weaker.

The examination of the *heart* showed the presence of a diffuse heave over the præcordial area, with no distinct apex beat. The area of cardiac dulness lay within normal limits, and the cardiac sounds were pure though latterly weak.

The *respiratory system* was involved. Dyspnœa was complained of for several weeks before admission, but was then brought on mainly by exertion. Latterly, however, it became more marked, and troubled him even when at

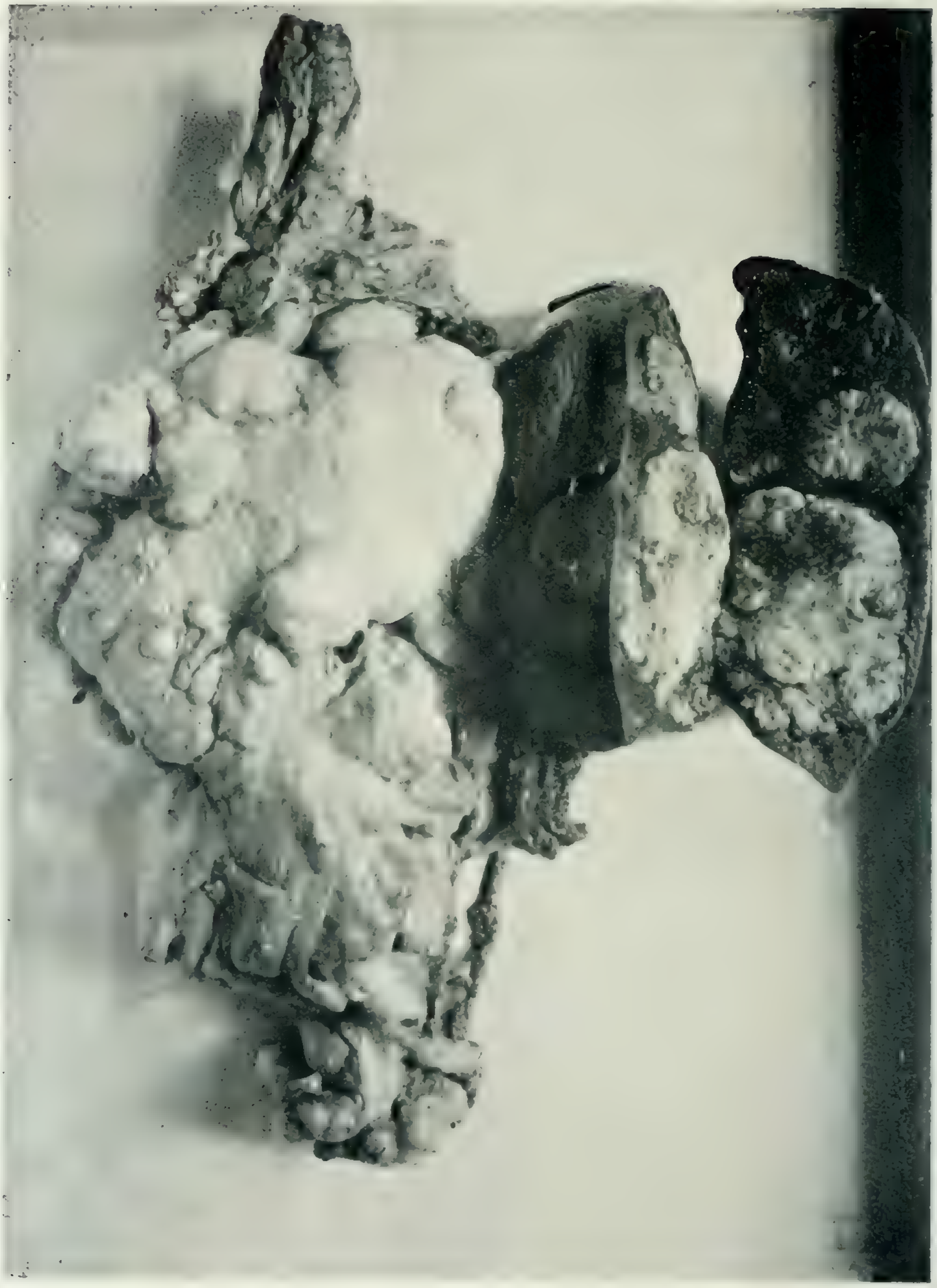

FIG. 2.

The œsophagus and abdominal glands, and the spleen with the tumour-like growths in it.

rest in bed. A number of factors had probably to do with this—the anæmia, the weak heart, and the enlarged glands in the neck and thorax, as well as pleural effusion. The physical signs did not yield definite information as to the state of the mediastinal glands, though these were found greatly involved at the *post-mortem*; but when the patient was seen first there was evidence of pleural effusion in the left side, possibly the result of pressure upon the left azygos vein. Towards the fatal termination pleural effusion occurred in the left side as a part of a generalised dropsy.

The functions of the *digestive system* were also impaired. The tongue was furred, and many of the teeth carious, but there was no sickness, vomiting, or constipation. The absence of these latter symptoms was remarkable in view of the great enlargement of the abdominal lymphatic glands (Fig. 2). These were not palpable owing to the presence of tympanites and ascites. There was evidence of the latter condition from the first time the patient was seen. The fluid gradually increased until the time of death.

The *liver* appeared to be slightly enlarged. The hepatic dulness at first measured $4\frac{1}{2}$, 5, and $5\frac{1}{2}$ inches, and later $4\frac{3}{4}$, $5\frac{1}{2}$, and 6 inches in the midsternal, vertical nipple, and mid-axillary line respectively. The enlargement was uniform and painless.

There were no important *renal* symptoms. The quantity of urine was usually a little less than normal, and the sp. gr. below 1024. There was neither albumen nor sugar present.

The *temperature* during the two days the patient was first in the ward varied between 102·2° F. and 97·4° F. During the second residence—limited to a week before death—the temperature was always subnormal except on the day of admission, when it was as high as 101·8° F., and two days later as high as 99·6° F. There was practically no opportunity of studying variations in temperature in this case, the period during which the patient was under observation being so limited. The temperature, however, in Hodgkin's disease when observed over a sufficiently long period is important. Gowers[1] has shown that it may assume three types—(1) the continuous, (2) remittent, and (3) the alternating, where periods of pyrexia alternate with periods of normal or almost normal temperature extending into several days. Frederick Taylor[2] has more recently given some special attention to this last form, and shown how "the recognition of this relapsing form of pyrexia may be of great assistance in the diagnosis of some doubtful cases."

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[1] *Loc. cit.*, p. 336.

[2] *Guy's Hospital Reports*, vol. lx, p. 1, "The chronic relapsing pyrexia of Hodgkin's disease," by Frederick Taylor, M.D.

There were no *nervous* symptoms beyond the increasing stupor as death approached. There was no complaint of headache or failure of sight. The examination of the eyes by the ophthalmoscope showed that the fundi were normal.

The *fatal termination* occurred on 6th September, the seventh day of his second period of residence. During this time he rapidly became worse, becoming more anæmic and much weaker, while the dropsy became more generalised, producing general anasarca and increased effusions into the pleuræ and abdomen. Seven hours before death he became unconscious, and respiration latterly became short, irregular, and at the end accompanied by tracheal rattle. The pulse fell from 96-132 to 68-88, but continued fairly good till near the end.

Treatment consisted in dieting, regulation of the bowels, and the administration of nux vomica, strophanthus, and alcohol to support the cardiac action. Liquor arsenicalis was also given in gradually increasing doses, but the administration of this had not proceeded very far when the fatal termination occurred.

Pathological report by Dr. John H. Teacher.—External.—The body is that of a very emaciated man. There is considerable œdema of the dependent parts and quite distinct œdema of the anterior parietes of the chest and abdomen and of the face. In the right axilla, corresponding to the oldest lesion above mentioned, is a mass rather larger than a goose's egg, weighing about 14 oz. On the most prominent part of this are the mouths of several shallow sinuses connected with calcareous masses. The mass appears to be of glandular origin, presenting the usual lobulated appearance. It is fairly firmly fixed to the chest wall. Masses of similar character but smaller size are felt on both sides of the neck, extending from the ear down to the clavicle, varying very greatly in bulk, and being largest about the angles of the jaws; that on the right side is the larger of the two. Much smaller masses are found in left axilla and right groin, and there are numerous subcutaneous nodules scattered over the trunk, the largest being found on the right side of the front of the chest. There are old cicatrices, suggestive of tubercular gland disease, on both sides of the neck.

Structure of glandular nodules.—The smaller and apparently younger masses present the rounded appearance of lymphatic glands; they are distinctly encapsuled; their substance is of somewhat firmer consistence and more gelatinous appearance and paler colour than normal lymphatic gland. There are distinct fibrous septa through the young nodules, which are much more pronounced in the older nodules; in the latter, also, caseous areas appear, and in many places there is also calcareous deposit. In some instances (*e.g.*, the large growth in the right axilla) there are calcareous masses embedded in tissue apparently of the same nature as that composing the young nodules: but numbers of calcareous masses in other parts have the characters of long extinct tubercular lesions, being stony bodies enclosed in a fibrous capsule. They were noted in both sides of the neck, roots of the lungs, mesentery, right iliac fossa, and posterior mediastinal glands. It seems as if there had been a widespread tuberculosis of the lymphatic glands on which a recent disease apparently of different nature has developed.

Thorax.—There are numerous nodules in the thoracic wall, some of which extend through between the costal cartilages into the anterior mediastinum. These are all soft and fleshy; they strip readily from the periosteum, none of them actually invading either bone or cartilage. There are considerable masses like enlarged glands all through the mediastinum, some being soft, others calcified, and in the neck on the right a cavity was opened containing soft caseous material. The connective tissue is very œdematous. Both pleural sacs contain a large quantity of serous fluid. The heart is small and shows marked brown atrophy. The pericardium is everywhere adherent by loose fibrous tissue. The arteries presented fairly healthy characters.

The lungs are atrophied, and both show cicatrices having the character of old tubercular lesions at the apices. In the right lung are two small rounded nodules like secondary tumours.

The bronchial lymphatic glands are highly anthracotic and in parts caseous. They show also soft white tissue infiltrating the anthracotic material, and surrounding it as with a thick white capsule. This shows the structure of Hodgkin's disease.

On opening the trachea a number of small nodules are seen in the mucous membrane, pale pink in colour, flat, and circular in outline. They are most numerous at the bifurcation; the highest lies 3 inches below the larynx: there are none below the bifurcation. On the outer aspect of the left branch, just below the bifurcation, there is a nodule with anthracotic centre, the soft white tissue of which can be seen to extend through the wall of the tube and appear inside it as a slightly projecting round growth. Its surface appears not to be ulcerated.

Abdomen contains a quantity of clear serous fluid. The connective tissue is œdematous, and there is almost complete absence of adipose tissue. There is a very large lobulated mass (Fig. 2), similar to those already described, situated behind the stomach and transverse colon. These organs were readily dissected away from it, but the pancreas is embedded in it. The liver and spleen are free from it. The mass has the character of a lymphatic glandular swelling: it extends down the aorta and iliac arteries, forming a large group of globular nodules along the brim of the pelvis on the right side and smaller groups in the middle line and on the left side. There are numerous small nodules in the mesentery and in the connective tissue beside the œsophagus. A number of small nodules are also embedded in the wall of the œsophagus: none are embedded in stomach or intestine. Some of the œsophageal nodules have perforated the tube and appear inside it. At one point close to the root of the mesentery, there is a collection of small flattened nodules apparently spreading in the peritoneum very superficially, as if infecting it from the cavity. The main mass is raised up from the vertebral column without much difficulty, and the kidneys and suprarenals are found not to be involved. Numbers of detached nodules were studded over the surface of the vertebral column, especially in the thorax, but these were all periosteal, nowhere invading the bone.

The liver is about normal in size, very dark and soft as if atrophied. Throughout it is studded with small orange yellow points (focal necrosis). The extreme right of the right lobe contained several globular red and white masses exactly like secondary carcinomatous tumours. A similar tumour, about the size of a marble, was found in the neighbourhood of the longitudinal fissure. The largest is fully 4 cm. in diameter.

The spleen (Fig. 2) is markedly enlarged owing to the presence of a few large globular red and white masses, apparently tumours. The substance of the tumours in liver and spleen is very similar to that composing the lymphatic masses, but appears to be more vascular and to contain hæmorrhages. There is nothing in the appearance of liver or spleen resembling the more diffuse infiltration which is seen in many cases of Hodgkin's disease.

Histological examination.—Sections were prepared from the right axillary mass, a number of lymphatic glands, one of the small nodules in the trachea, and the nodules in the lungs, liver, and spleen. From the naked eye appearance the condition had come to be regarded as most probably sarcomatous, so far at least as the internal growths were concerned, while that in the axilla was thought to represent the tubercular process, which was shown to have been of wide extent by the calcareous masses. All the tissues examined, however, showed the characteristic structure of Hodgkin's disease (Fig. 3). The tissue is of the nature of granulation tissue, varying greatly in the degree of cellularity on the one hand, and in the amount of fibrous tissue on the other. The more cellular parts show oval and round cells of various sizes, fibroblasts, multinucleated cells, lymphocytes, and fibres. There are also a few cells with eosinophile granules.

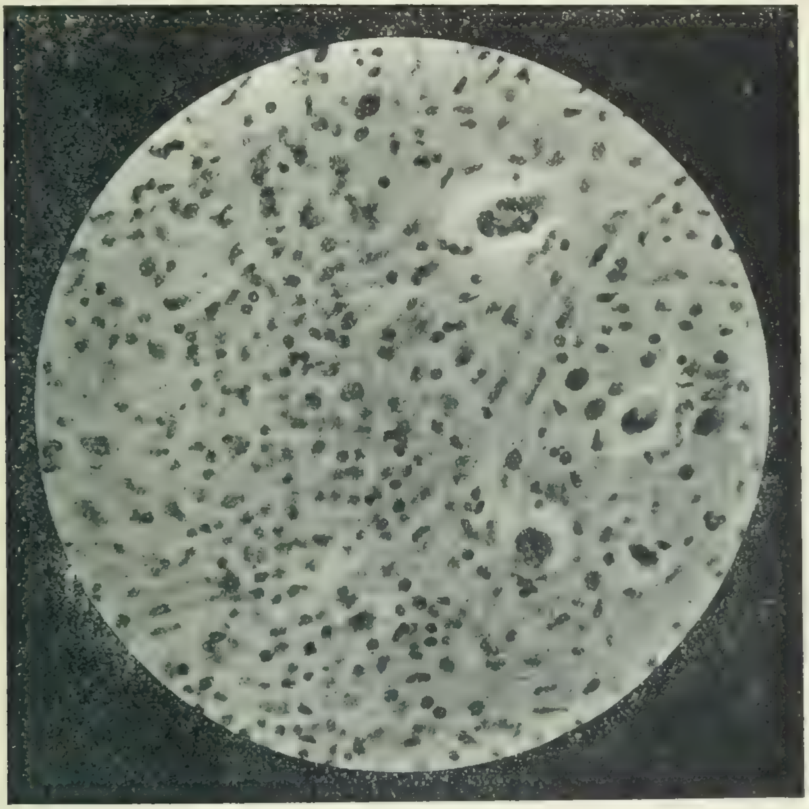

FIG. 3.

Section of a nodule in the liver showing great variety of cells.

The primary mass is for the most part in a state of caseous necrosis, or has become fibrous; but towards the margin it shows the same structure as the younger nodules. Tubercle bacilli could not be found in any part, nor was there any tissue having the structure of tubercle. The case therefore is clearly one of Hodgkin's disease; but the pathological appearances, particularly in respect to the type of involvement of the liver and spleen taking the form of a few large nodules, were suggestive of tumour to an uncommon degree. The perforation of the trachea and the formation of small nodules in its mucous membrane is also an unusual feature of these cases. On the other hand the glandular enlargements were quite as characteristic as the histological structure.

General remarks by Dr. Ness.—Hodgkin's disease is a comparatively rare affection. Many cases recorded as such no doubt were really cases of chronic tuberculosis affecting the lymphatic system. Some observers, among whom are Sternberg[1] and Musser,[2] have advanced the view that Hodgkin's disease is a peculiar form of lymphatic tuberculosis, and the contention is supported by the fact that in many cases, even where there is neither macroscopic nor microscopic evidence of tubercle, tubercle bacilli may be proved to be present by inoculation experiments in animals. However, in some cases of Hodgkin's disease, these experiments are negative, and so also is the tuberculin test during life. Of course, as Hodgkin himself indicated, and as exemplified in the case just recorded, there may be an accidental association of lymphadenoma and tuberculosis. The prevailing view is that the two conditions are essentially different, and the probability is that lymphadenoma is due to a general infection, though the micro-organism is still unknown. Bacteria are frequently found in the affected tissues, but no special form has been found to predominate. Probably those found as yet are the result of terminal or accidental infections. Murray[3] quotes Delbet[4] as asserting that he had isolated a bacillus from the spleen of a woman suffering from generalised lymphadenoma in which the spleen was also affected, and that pure cultivation of this bacillus inoculated into a dog several times at various intervals had produced rapid emaciation and a generalised lymphadenoma. This, however, has been unconfirmed, so that up to the present time the nature of Hodgkin's disease remains still obscure.

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[1] *Zeitschrift für Heilkunde*, vol. xix, 1898, p. 21.

[2] *Transactions of the Association of American Physicians*, 1901, p. 18.

[3] *A System of Medicine*, edited by Sir Clifford Allbutt and Humphry Davy Rolleston, 1908, vol. iv, part 1, article "Lymphadenoma," by George R. Murray, p. 468.

[4] Delbet, *Sem. Méd.*, 1895, p. 271.

TREATMENT OF HYPERTRICHOSIS BY *X*-RAYS.

By JOHN DONALD, M.D., D.P.H. Camb.

The subject naturally divides itself into two chief sections—I, technique; II, dangers to be avoided.

I.—Technique.

1. *Choice of tube.*—The tube should be a hard one. Hardness, of course, is a matter of degree: but for our present purpose I would consider a hard tube to be one which will only begin to cause sparking at the tube spark-gap, or the terminals of the coil, when the distance of the air space in either of these situations is just less than 12 centimetres (5 inches); that is to say, 12 centimetres is the smallest distance between the sparking points which we can have without sparking. Looking at the physical condition of such a tube, we find that its vacuum is of such density that when the spark-gap is made 12 centimetres, the current will pass through the tube without sparking; but whenever we make the spark-gap any smaller than 12 centimetres, some of the current finds it easier to pass by the spark-gap than through the tube. To take an example. Suppose we put a very hard tube in circuit, one which stops sparking at 20 centimetres (8 inches), and pass 3 ampères through the primary of the coil, we may find the reading on the current meter on the tube circuit to be ¼ milliampère. If we remove this tube and put in its place a hard tube, one which will stop sparking when the gap is as wide as 12 centimetres (5 inches), we find that the tube circuit shows ½ milliampère. If we now, in the third place, put into the circuit a soft tube, one which will allow the spark-gap to be as small as 6 centimetres (2½ inches) without sparking, we find the tube circuit showing ¾ milliampère. A soft tube, then, will pass more current through it than a hard one, when the same quantity has been sent through the primary, because the inside of the soft tube has less resistance in it than a hard one, owing to the atmosphere in the former not being so rarefied as that of the hard tube. In the case of the hard tube, the loss of current strength at the tube is due to some of the current passing through the incompletely insulated wires into the air. A soft

tube is inclined to burn the patient, because the density of its atmosphere is such as to cause little resistance to the current. The denser the atmosphere, within certain limits, the more current will pass.

It may be mentioned here that the radio-chromometer, which tells us the penetrative power of a tube, and is very useful in radiography, is hardly to be relied on in therapeutic work, as such instruments give us no information as to the real quantity of *x*-rays administered.

2. *Quantity of x-rays.*—There are two factors to be considered here.

(*a*) The *strength of the current* registered on the wire in immediate connection with the tube should never be more than ½ milliampère. It is, indeed, safer to work more slowly, and use only ¼ milliampère. If we are using a tube without any automatic regulator, we may find during one sitting that this measurement will sometimes rise or fall, owing to alteration in the vacuum of the tube, even when the quantity sent to the primary remains constant. If the tube become too soft, and the meter on the tube circuit registers more than ½ milliampère, we must reduce the current going through the primary. If the tube become too hard, begin to spark at the spintermeter of the coil, and the current registers less than ½ milliampère, we may heat the tube slightly with a Bunsen burner, and find the quantity increasing owing to liberation of hydrogen particles from the walls of the tube. This is usually sufficient without increasing the current going through the primary. On the other hand, if the tube has an automatic regulator on it, we have only to fix the spark-gap on the tube at 12 centimetres, and it will correct itself. What happens is that hydrogen particles are again liberated when the current is passing by the regulator on account of the resistance of the tube being too great.

(*b*) *Speed of the interrupter.*—This varies in some cases, probably owing to alteration in the voltage, when using a current from the main. With a dip-interrupter, such as is made by Dean, we shall find a speed of 1,000 interruptions per minute suitable. With Dean's automatic release-switch in circuit, we can still more exactly gauge the dose that the patient gets, because instead of giving ten minutes' exposure, we can set the pointer on the clock face at 10, and it will reach zero when it has made 10,000 dips. If the engine travels faster, then we shall have the pointer reaching zero sooner, and thus correct any error of current due to altered speed. When the pointer reaches zero, we can have it arranged that the current will at once stop, or a red lamp in circuit can be lit, or a bell made to ring. Any of these arrangements will help to prevent overdosing during any one sitting.

It may be remembered that difference in speed of the interrupter will give a different current-strength on the tube circuit. Using a large coil, we can observe that if a current of 3 ampères be sent through the primary at a pressure of 29 volts, the speed of Dean's interrupter being 1,000 per minute, we shall get a current-strength of $\frac{6}{10}$ milliampère at the tube. If now we diminish the speed of the interrupter to 250 per minute, we shall notice that the current going to the primary becomes 4 ampères, the voltage remains at 29, and the current-strength at the tube $\frac{4}{10}$ milliampère. The increase of current going to the primary is due to diminished resistance. This resistance is chiefly the space between the dipping point and the mercury. The slow interruptions make the dipper remain longer in the mercury, and thus more current is passed. On the other hand, with slow interruptions, the induced or secondary current is reduced, because the strength of this current depends upon the frequency with which the continuous current is interrupted. Very frequent interruptions splash the mercury, and prevent good contact between it and the dipper. The current going to the primary is, therefore, reduced, while the induced current is increased.

II.—Dangers to be Avoided.

1. *Wound of the skin.*—This is perhaps the most serious accident which may occur. It will, however, not result so readily, let us hope, with the experienced operator. It is evident that the seriousness of a wound of the face, when removing superfluous hair, is greater than in the case of a wound occurring where there is some disease present, such as lupus, which may be ulcerating already, or even in some diseased condition which lies under the unbroken skin. With our present knowledge, however, of x-rays, it should rarely happen that any wound would result when removing superfluous hair.

The patient should have not more than 5,000 interruptions at each sitting for the first week, and the sittings may be given daily. In any case, the patient should never receive in x-rays more than 10,000 interruptions at one sitting, and on the same surface. The x-ray tube should be placed not nearer the skin than 10 centimetres (4 inches). Whenever the slightest blush is noticed, a day or two should elapse before treating again. It may be remarked that any change in colour is more apparent in daylight than in electric light.

2. *Pigmentation of the skin.*—Two classes of patients present themselves for removal of superfluous hairs. In the one, the patient may be inclined to pigment or become darker in the skin when exposed; in the other, the skin may become easily reddened. The person who pigments is usually of a brunette complexion, and becomes darker in the skin in summer if exposed much to the sun. The other kind of patient is of a fair complexion, the skin becoming more fired than dark when exposed to the sun.

At first sight probably the clear complexioned patient would be expected to give us more concern. That is not so, however. We should be all the more tardy in our treatment of this kind of patient, and thus obviate any danger. With the brunette, without inflaming the skin, not to mention making a wound, we may find the skin becoming darker and darker. We should never allow pigmentation to go beyond the slightest shade. With a brunette we may give six sittings of not more than 4,000 interruptions each, and only over a limited area, until we see how the skin is going to react. If any darkening should appear, treatment ought to be suspended until we see it passing off. Some patients will darken on the third or fourth exposure, and would become more so were treatment continued. The *x*-rays in cases like this may have to be abandoned. This is not very common, however, and if we proceed cautiously we cannot go far wrong.

3. *Atrophy of the skin.*—It has been said that treatment by *x*-rays causes atrophy of the skin. Of course, when a burn has resulted in a wound of the skin, we can see atrophy very distinctly in the cicatricial tissue. When only slight abrasion has resulted, we can hardly notice any atrophy. Removal of hair by *x*-rays should, in my opinion, be carried out so slowly that there will not even be abrasion, and thus no apparent atrophy. If for any reason slight atrophy is apparent, we can minimise the defect, or prevent it being so apparent, by paying attention to the margin of the part being treated as described farther on.

When removing hair by *x*-rays, we find the finest hairs disappearing first, as we might expect. Occasionally, when a large area has been treated, we find some strong hairs making their appearance again. When there are only a few, say any number up to twelve, it is not desirable to expose the skin to rays again, because there would be a chance of atrophy resulting. Each hair-root should be separately electrolysed with the needle. This will also economise time.

4. Under this heading we shall refer chiefly to *errors in the method of applying the lead sheets.* We must, as far as possible, carry out the treatment with a view to symmetry of appearance. We should endeavour to avoid leaving a narrow line of hair down the centre of the cheek, for this might keep the patient from going into company for a long time. This line attracts people's attention, and the electrician, like others, should bear in mind that the "height of art is to conceal art."

Having finished the treatment of a patient, we find everything looking well. In six weeks or so the patient returns to us, when everything seems satisfactory with one exception—the hair has grown up at the margin, leaving a thin line of hair down the middle of the cheek. Moreover, this line of hair is so sharply outlined that the completed part looks as if it had been shaved with a razor. The reason why this line of hair has appeared is that the part had the x-rays applied at times so that the hairs there were debilitated and disappeared. The roots of the stronger hairs, however, were not killed. These stronger hairs reappear and look larger, because the smaller ones have been permanently removed.

To obviate this it is necessary to use lead sheets with serrated edges, the serrations being about $\frac{1}{2}$ inch deep. The lead should be heavier than tea lead in order to prevent the points breaking, and the sheets should be applied, as in vignetting a photograph, about $\frac{3}{4}$ inch off the skin. Each day the sheets will likely occupy a slightly different position, and the effect will be more diffused. If the lead sheets be applied close to the skin, we would, of course, get a pattern on the skin.

CONCLUSION.

Never treat more than 4 square inches in one area at a time. Too many different areas at a time should not be undertaken, as it will bring discredit. Some part will get too little treatment and the hair will return.

Do not be influenced by the patient tempting you to do the work faster than you deem it safe—a wound would likely result.

Never treat at the same time two areas which are very near each other, lest a flushing of the whole face should occur.

Always give about ten sittings after the hair has disappeared, to make sure of the roots being destroyed. These sittings need not be oftener than three times weekly.

An area should not be considered thoroughly finished until the hair has remained absent for three months.

THE HISTORY OF BOTANY IN GLASGOW UNIVERSITY AND SOME PERSONAL REMINISCENCES.

At the first meeting of the Glasgow University Botanical Society, held on 3rd ult., Professor Bower delivered an opening address with the above title. The history may be said to begin in 1704, on the 4th July of which year it is stated in the records of the University that the Faculty enacted that part of the great yard, and of the yard behind the gardener's house, be improved for amenity of the College and for improvement of students in the knowledge of botany. In pursuance of the above we have the following minute:—"The Faculty, having resolved to prosecute their own Act of 4th July anent the improvement of some parts of their great yard for botany and a physic garden, do now think it necessary to name one who shall have the charge and oversight thereof, and who may instruct the scholars who shall apply to him for the study of botany, and being informed that John Marshall, chirurgeon in Glasgow, is capable of discharging that trust, and being specially recommended by the Dean of Faculties' letter, therefore the Faculty does nominate the said John Marshall to the said employment." This John Marshall was the son of Patrick Marshall, surgeon, Kilsyth. He is believed to have studied in Paris about 1677, and he afterwards became a member of the Faculty of Physicians and Surgeons of Glasgow, and commenced practice in the city. He began to teach botany in 1704, and probably continued to do so till about the time of his death in 1719. After this botany did not maintain its position as a subject with a separate teacher, but for about a century it was conjoined with anatomy as a double chair.

On 4th September, 1704, Marshall was appointed keeper of the Botanic Garden and instructor of students, his salary to be £20 per annum, "with suitable allowance for a gardener to work under him."

The double chair of botany and anatomy originated probably after Marshall's death, its first occupant being Dr. Thomas Brisbane. It is recorded on 19th September, 1727, that "Commission of visitation ordains that the Professor of Botany and Anatomy teach botany yearly, from the 15th of May to the 1st day of July, if five students offer, and that Dr. Brisbane, present Professor of Botany and Anatomy, is obliged to teach anatomy as well as botany. He is to begin to teach anatomy as soon as ten students offer, and if no such number offer before 1st November, to prelect publicly on anatomy once weekly till 15th May, when he begins to teach botany." Professor Bower notes that the time here specified for teaching botany is the earliest instance of a separate summer session.

Dr. Brisbane was succeeded in the joint chair by Dr. Robert Hamilton (1742), who in his turn was followed by Dr. Joseph Black (1756). After holding office for one year, Dr. Black was succeeded by Dr. Thomas Hamilton (1757), and twenty-four years later Dr. William Hamilton was appointed to the chair (1781). It was evidently during Dr. William Hamilton's tenure of office that glass came to be used in the College physic garden, which thus ceased to be merely an herbaceous plot. Professor Bower grounds this opinion on the entry in the records, dated 1st May, 1790, in which it is mentioned that Professor William Hamilton, who died 13th March, 1790, directed that his anatomical preparations and apparatus for teaching anatomy and botany should be offered to the University at valuation, *as also his hothouse* in the Botanic Garden. On 28th February, 1791, Hamilton's trustees offered preparations and hothouse to the College for £298; the College offered £243. The offer of the College having been declined by the trustees, they were granted permission to remove the preparations and hothouse; but it appears that the latter was purchased by Jeffray, Hamilton's successor.

Dr. James Jeffray was appointed to the chair on the death of Hamilton in 1790, and it was during his incumbency that events happened which resulted in the creation of a separate chair of botany. Jeffray had been summoned to London in in 1799 by a Committee of the House of Commons, and on 21st May of that year he wrote from London that the business for which he went there would not allow him to return by 1st June, at which date he intended to open the botany class. He proposed, therefore, to employ Dr. Thomas

Brown as a person qualified and ready to begin and continue the business of his class till he should return. This was agreed to by the University, and Jeffray promised to settle the remuneration with Brown.

On 7th May, 1800, the authorities in the University considered a letter from Jeffray, and were of opinion that it would tend to the advancement of medical science in the University if anatomy and botany were taught by different persons. Being of the opinion that Dr. Brown was well qualified, they allowed Jeffray to employ him, Brown to have no claim, however, on the College funds. He lectured for some years on botany in the University before the foundation of the chair in that subject.

Brown, who graduated M.D. of Edinburgh in 1798, became surgeon to the Glasgow Royal Infirmary in 1804, and held this office till 1810. He was subsequently physician to the Infirmary (1824-1828). In 1829 he succeeded to the estate of Lanfine, and on his death in 1853 he bequeathed his collections to the Universities of Edinburgh and Glasgow in equal shares.

On 6th May, 1816, Jeffray received permission from the University to appoint Robert Grahame to teach the botany class: and in 1818 Grahame was appointed *Professor* of Botany, the separate chair being founded by the Crown in that year. Jeffray, who is known to surgeons as the inventor of the chain-saw, remained in the anatomy chair till 1848. Grahame did not long occupy the chair of botany. In 1821 he transferred to Edinburgh. He was succeeded in Glasgow by Sir Wm. Hooker, whom Professor Bower styles "the strongest occupant the chair of botany in the University has had." The old Botanic Garden within the grounds of the College was feued in 1814; but it would seem to have ceased to serve its purpose as a Botanic Garden very shortly after 1800, for after that date we find in the record items paid for "supplying plants for the class of botany." No new garden was at once established; but as the result of a movement on the part of the citizens, in which the Crown and the College joined, the charter of the Royal Botanic Institution was obtained, a garden was established in 1817 at Sandyford, and opened to the public in 1819. The garden occupied about eight acres of ground between Claremont Street, Dumbarton Road, and Sauchiehall Street. The basis of the scientific collection of the new garden was the gift by Mr. Thomas Hopkirk, of Dalbeth, of his private collection of some 3,000 species. Grahame, who took an active part in the initial movement, gave several courses of lectures in the new garden; but its success was largely due to the personal influence of his successor, Hooker, and the years 1825 to 1840 were the most notable period in the history of the garden as a scientific institution compared with its contemporaries. Hooker left Glasgow in 1841 on his appointment as director of the Royal Gardens at Kew; but before his departure the directors of the garden resolved (in 1838) to remove their valuable collection of plants from a locality which was rapidly becoming congested by the extension westwards of building operations, and in 1839 they purchased the present site from the trustees of the Kelvinside estate. The removal was commenced in that year, and completed in 1842.

Hooker was followed in Glasgow by Dr. John Hutton Balfour who, like Grahame, did not stay long, but went to Edinburgh in 1845. Dr. G. A. Walker-Arnott was then appointed to the vacant chair, which he filled till his death in 1868. Next came Dr. Alexander Dickson, who migrated to Edinburgh in 1879, and was succeeded in Glasgow by Dr. I. Bayley Balfour. Balfour left Glasgow for Oxford in 1885, in which year Professor Bower was appointed. At the present time Professor Bower's tenure slightly exceeds that of Walker-Arnott, previously the longest occupant of the chair.

Since the opening of the Sandyford garden in 1819 there have been many changes in the teaching accommodation. There was a lecture room in the Sandyford garden in which both academic and public lectures were given. There was also a lecture room in the Kelvinside garden; this is still standing. When the College moved out to its present site at Gilmorehill, a lecture room was provided in the new buildings. There was also a sideroom and an attic for the herbarium. Many of our readers will remember that when Professor Bower came to Glasgow he had the use of the *Greek* class room as a lecture room, while the laboratory consisted of two small rooms situated near the head of the Anatomy stairs. This is now all changed, as a few years ago substantial sums amounting to nearly £20,000 were received from the Patterson Fund, the Randolph Bequest, and the Bellahouston Grant, and the present buildings of the botanical department were erected in the University Avenue, to the east of the gymnasium.

We are indebted to Professor Bower for his interesting address, and we have to thank him for his courteous permission to abstract so freely from it, and for his help in the preparation of the above notes.

It is unwise to say or to think that we have reached perfection, but an inspection of the lecture room, laboratories, and museum in the buildings in University Avenue, followed by a visit to the collections in the Botanic Garden, will convince us that the opportunities therein offered for the study of botany in its various aspects are now such as to satisfy even an exacting critic.

Obituary.

JOHN LINDSAY STEVEN, M.D., F.F.P.S.G.

The death of John Lindsay Steven at the age of 51 years, which occurred in the early morning of Sunday, 14th February, has come upon the medical profession in Glasgow and the West of Scotland with the most startling suddenness and with the complete unexpectedness of the deepest tragedy. Few knew that he was ill. Even those few hardly realised, or could bring themselves to believe until almost the end, that his illness must necessarily have a fatal issue.

At a special meeting of the Medico-Chirurgical Society three weeks before, he had proposed the vote of thanks to Professor Muir for his lecture on "Immunity," and it is within the recollection of those who were present that he spoke then with apparently all his wonted vigour and animation. This was probably his last public speech, and it is noteworthy that he was seated on that evening alongside Mr. Henry E. Clark, C.M.G., whose sudden, though perhaps less unexpected, death took place about ten days later. Both had held the important office of President of the Society, but, while Mr. Clark was well up in years and manifestly less robust than he used to be, Dr. Lindsay Steven was in the very prime of life, and was still, to all outward appearances, in excellent health. Hence the shock caused by his unexpected and, in a sense, untimely death.

Only in a sense can his death be termed untimely. To those who knew and loved him, who felt that in him the profession in Glasgow possessed a very tower of strength, who realise that now there is a gap in their ranks which cannot be easily filled, his death may well be thought untimely. And yet there is the other view, which, one cannot help

JOHN LINDSAY STEVEN, M.D.

thinking, would have found in him a ready acceptance, viz., that to die in harness, or practically so, is preferable to a final illness long drawn out, in which the man, who previously has led a busy life, full of strenuous endeavour and active work, finds his faculties gradually decay, and his physical and mental powers slowly decline. There can be little doubt as to what his own choice would have been, given these alternatives. His tragically sudden death is only one more example of the truth of the statement that the final illness of a busy medical man is seldom of a protracted character; that it is, indeed, very often startlingly brief.

Until ten days before his death, Dr. Lindsay Steven was engaged in the active prosecution of his professional work, and was conducting, apparently with all his natural vigour and enthusiasm, the duties of his clinique in the Western Infirmary. As the result, it was thought, of a chill caught in the course of a professional engagement out of town, he took to bed on account of what was at first regarded as merely a comparatively trifling cold. The true gravity of his condition was not realised until three days before the fatal issue took place, when the advice and assistance of a medical colleague were sought. It was then appreciated that he was beyond all human power to help. The fatal termination was due to an exacerbation of a chronic renal condition, complicated by acute pericarditis with effusion.

The closing hours of his life were marked by considerable physical distress, borne with the greatest fortitude and patience. Until the end consciousness was preserved, and realising well the issue that alone was possible, John Lindsay Steven faced it with steadfast courage, simple faith, and a sure hope.

Dr. Lindsay Steven received his early education at the Glasgow Academy, and thereafter he proceeded to the University of Glasgow, where he graduated M.B., C.M., "with Honours," in 1880. He obtained at his graduation the Brunton Memorial Prize, awarded to the most distinguished graduate in medicine of the year. In 1884 he obtained his M.D. degree with "High Commendation," at that time the highest award granted by the University. His graduation thesis on *The Pathology of Suppurative Inflammations of the Kidney* was almost at once recognised as the work of a reliable investigator, and the importance of the lymphatic connections of the lower with the higher urinary organs established by his research was accepted by the best authorities on the subject. The classification of suppurative inflammations of the kidney put forward by him in his thesis has formed ever since the generally accepted basis of most of the later works on renal suppurative conditions. Thus early in his career did he establish his reputation for accurate, trustworthy, and brilliant scientific work.

Following graduation, Dr. Steven went through a term of duty as resident in the Western Infirmary, being house surgeon in the wards of the late Professor George Buchanan, and thereafter house physician under the late Professor Sir Thomas M'Call Anderson. In 1881 he became one of Sir Thomas M'Call Anderson's University assistants, which office he continued to hold until 1889. During the same period he acted as assistant to the late Professor Joseph Coats. Thus he was able, while keeping in close touch with the work of the medical wards, and serving there his apprenticeship as a teacher of clinical medicine, to devote much of his time and overflowing energy to the prosecution of the pathological studies which first brought him into prominence, and which so profoundly influenced his development as a scientific physician.

Throughout the greater part of his early career this correlation of clinical and pathological study was continued. At various periods subsequent to graduation he visited the medical schools of Leipzig, Berlin, and Paris, devoting his attention particularly to the study of clinical medicine and pathology, and when, in 1889, he left the Western Infirmary on his appointment as Pathologist to the Royal Infirmary and Professor of Pathology in St. Mungo's College, he continued to teach clinical medicine in the Royal Infirmary Dispensary, in virtue of his appointment, in 1885, as one of the assistant physicians in that institution. From the opening of the dispensary of the Royal Hospital for Sick Children he acted as one of the physicians, and gave clinical instruction there also. During the years 1889-1895 Dr. Steven gave systematic and practical instruction on pathology in the Royal Infirmary. His direct association with active pathological research and instruction was only severed when, in 1895, he was elected visiting physician and lecturer on clinical medicine to the Royal Infirmary. His keen pathological bent was never broken or substantially modified till the close of his career.

During the years in which he continued on the visiting staff of the Royal Infirmary he gave clinical instruction in his wards to the women students from Queen Margaret College, and from 1896 to 1903 he lectured on systematic medicine in

Queen Margaret College. At different periods he acted as examiner in pathology and in medicine in the Universities of Glasgow and St. Andrews.

The death of Dr. James Finlayson created, in 1906, a vacancy on the visiting staff of the Western Infirmary, to fill which Dr. Lindsay Steven was unanimously selected by the Board of Management. His transference from the Royal Infirmary to the Western Infirmary was hailed by the profession as a fitting recognition of his valuable work and scientific standing. His appointment was regarded as eminently suitable, particularly in succession to the notable physician whose lamented death had left the gap to be filled.

In not a few respects Dr. Finlayson and Dr. Lindsay Steven resembled each other. Both were painstaking and careful observers and recorders of clinical facts: both were disciples of the late Sir Wm. T. Gairdner, and in their methods of work, and processes of thought, as well as in their literary and historical tendencies, they exhibited much that was characteristic of their great teacher. From the time of his appointment to the Western Infirmary, Dr. Steven's success as a clinical teacher was never doubtful. He threw himself wholeheartedly into his new duties, and from the first he attracted large numbers of students to his clinique.

In addition to the monograph on *Suppurative Inflammations of the Kidney*, already mentioned, Dr. Lindsay Steven made many valuable contributions to the literature of medicine. In 1887 he published his text-book on *Practical Pathology: an Introduction to the Practical Study of Morbid Anatomy and Histology*, which was one of the earliest and most comprehensive text-books on the subject in this country. In 1892 he published a monograph dealing with *The Pathology of Mediastinal Tumours, with special reference to Diagnosis*, which attracted much attention both in this country and abroad. In 1900 he published a volume of *Lectures on Clinical Medicine;* the lectures were delivered in the Royal Infirmary, and most, if not all, appeared from time to time in the pages of this *Journal*, being issued afterwards in collected form. These lectures contain much interesting, instructive, and thoughtful teaching, and are very characteristic of the author's style.

His total contributions to medical literature number over 100, and, in addition to those quoted, many were of very great value, and were characterised by careful scientific work and accurate clinical instinct. The most notable perhaps were—"On Fibrous Transformation of the Heart," 1885: "Lectures on Fibroid Degeneration and Allied Lesions of the Heart, and their Association with Disease of the Coronary Arteries," 1887: "The Pathology of Fibrous Degeneration (Fibrous Transformation) of the Heart, with Twenty-one Cases," 1893: "A Contribution to the Pathology of the Coronary Arteries of the Heart, based on an Analysis of Two Hundred and Thirty-eight Cases," 1898; "Morgagni to Virchow: An Epoch in the History of Medicine" (his Presidential address to the Glasgow Medico-Chirurgical Society, October, 1905). A complete list of his published works, arranged in chronological order, was embodied with his formal application, in February, 1908, for the Chair of Practice of Medicine in the University of Glasgow in succession to the late Professor Sir Thomas M'Call Anderson. This list can be seen in the library of the Faculty of Physicians and Surgeons, Glasgow.

In addition to these published works, Dr. Steven was for a long period closely associated with medical publication. He held for eleven years the office of editor of this *Journal*, at first in association with the late Professor Joseph Coats, and later as joint-editor with Dr. T. K. Monro. He brought to his work as editor of this *Journal* the same energy, enthusiasm, and conscientious discharge of duty as characterised his work in every other direction.

Dr. Steven early won for himself a high reputation amongst his professional brethren in Glasgow and in the West of Scotland, first as a pathologist, later as a reliable and brilliant physician, and as a force in the sphere of medical education and politics. At the time of his death he was in the full prosecution and enjoyment of a very large consulting practice, and his diagnostic skill was valued highly by a large and still extending *clientèle* in the ranks of the profession.

Becoming a Fellow of the Faculty of Physicians and Surgeons in 1889, he was elected a member of the Council of the Faculty in 1895, and in 1903 he was appointed by the Faculty as its representative on the General Medical Council in succession to Sir Hector C. Cameron. In 1906 he was unanimously re-elected for a further term of office of five years. As a member of the General Medical Council he early made his mark in the discussions and proceedings of that important body, and brought to its deliberations and work the keen insight, readiness of appreciation, and debating ability which have long been recognised as characteristic of him. He held, at various periods, important offices in the local medical societies, and in 1905 he became President of the Medico-Chirurgical and Pathological and Clinical Societies.

As a public speaker, and as a teacher, he combined the faculties of clear speech and accurate description with a terse, lucid, and attractive style. The effectiveness and fluency of his public utterances were all the more notable in that they were achieved in spite of a natural peculiarity of intonation which was dominated only by powerful and continuous persevering effort.

His special literary and historical bent has been already referred to. It was well known, and led to his unanimous election by the Faculty to the post of Honorary Librarian in succession to the late Dr. Finlayson. It may be said, indeed, with truth that from the time of the latter's death Dr. Lindsay Steven occupied in Glasgow, if not in the whole of Scotland, an almost unique position as a student of the history of medicine.

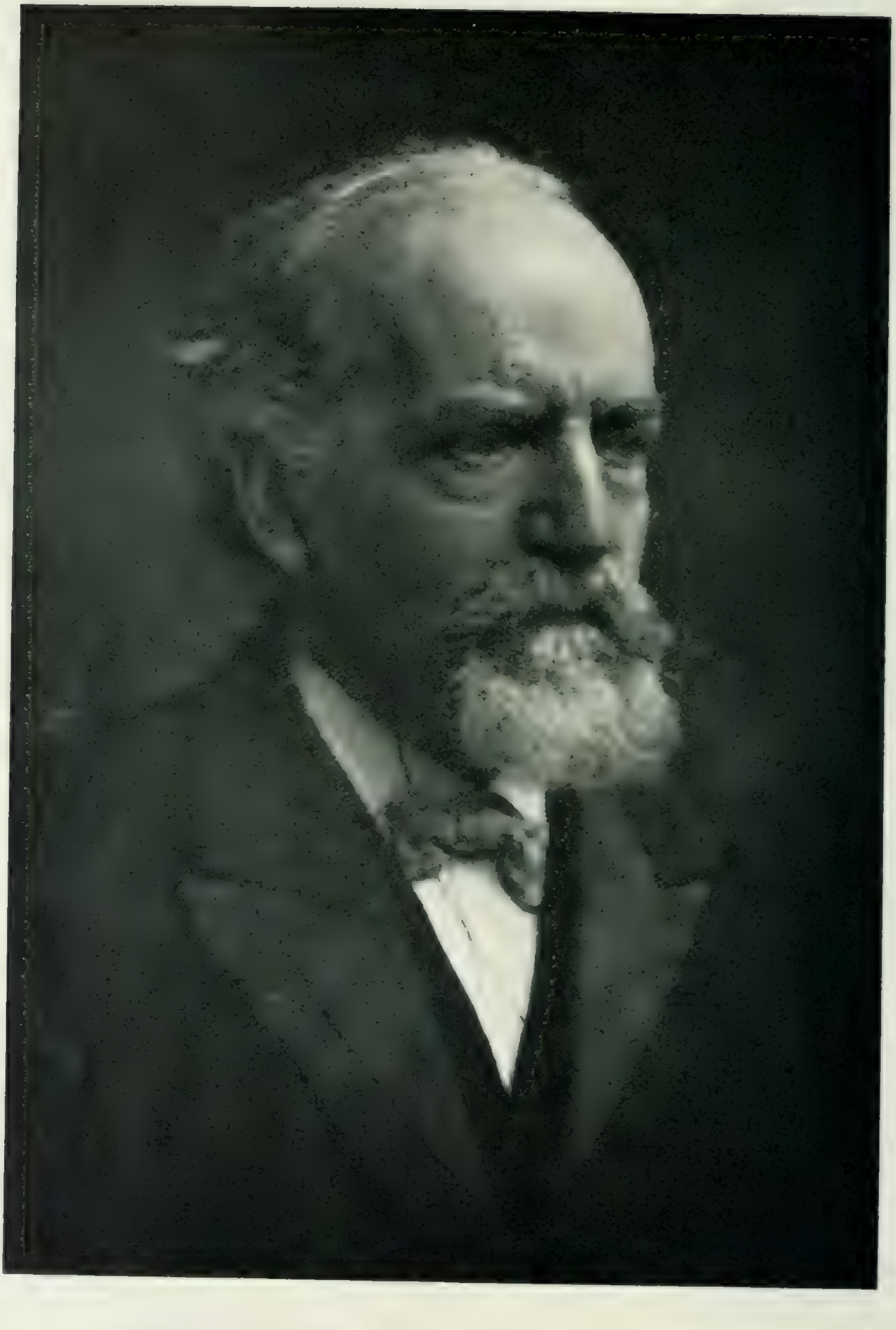
While thus summarising the work and achievement of Dr. Lindsay Steven, the scientific pathologist, historian, and physician, it would not be fitting to neglect the other aspects of his life and work. He was for years an earnest advocate of temperance. For years he was a total abstainer. He was a man of deep religious convictions, and for many years, even when his daily labours were of the most strenuous and unremitting kind, conducted every Sunday a Bible-class in connection with the church with which he was associated. Himself a worker, he expected those associated with him to work hard and conscientiously, and he had the faculty of obtaining from his assistants the most ungrudging support. For all such support and assistance he always accorded credit in the most generous manner. To his former resident assistants, as also to nurses and students associated with him, he was ever a warm friend, and he never spared himself any trouble when his assistance and support were desired.

In virtue of his transparent honesty, of his open-minded readiness to consider a subject from all points of view, of his faculty of clear and connected thinking, and of his courage and determination of character, Dr. Lindsay Steven became an outstanding force in the public life of the profession; his death leaves a feeling of blankness which is difficult to describe or adequately to explain. In Glasgow and its medical life he held a practically unique position, midway, as it were, between the older physicians and the younger men. In this intermediate position he may be said to have stood alone amongst the leading physicians of Glasgow and the West of Scotland. Looked at from the point of view of his public standing, and of his position in the esteem of the whole profession, the blank left by his much lamented death may be readily appreciated.

Looked at from the standpoint of those who, like the writer, were privileged in having known him for many years in a closer and more personal relationship, all these considerations are for the moment overshadowed by a sense of the deepest personal loss.

The writer was Dr. Lindsay Steven's first house physician in the Royal Infirmary following upon his appointment to the visiting staff. He met him in his early enthusiasm, and had personal experience of his earnestness in work, as well as of his generous acknowledgment of work done by others on his behalf. He formed with him a friendship which endured and deepened with the passing years. More intimately, perhaps, than almost any of Dr. Steven's friends, outside of the inner circle of his family, he knew his worth and character, his simple faith, his deep religious convictions, his unswerving devotion to duty, his abhorrence of evil whether public or private. He knew him as a true man, whose influence was all for good, and in this halting and imperfect tribute he seeks to acknowledge, what he cannot hope in any sense to repay, viz., the great debt he owes to his friend and master, John Lindsay Steven. **A. Y.**

As one who knew Dr. Lindsay Steven well from his undergraduate days to the close of his life, I would like to add a brief tribute to his memory. John Lindsay Steven was early marked for distinction. As a student he displayed those qualities which characterised his later career. He took a keen interest in students' societies, just as later on he was one of the ornaments of the medical societies of this city. The first time I heard him speak was at a students' dinner, when he proposed the toast of the "University of Glasgow." That speech was quite in the style of his later manner, carefully prepared, full of exact information, and with the ideas arranged in clear and orderly fashion. He was an excellent after-dinner speaker, not without humour, and speaking with a readiness and brightness which few possess. He was an able debater, as was shown at the meetings of the Faculty, in medical societies, and, later, on a wider field, in the discussions in the General Medical Council. In everything relating to medical education he took a very keen interest, had his own opinions on the subject, and never hesitated to give utterance to them. Whilst his manner at times was



HENRY E. CLARK, C.M.G., M.R.C.S. Eng.

somewhat brusque, at heart he was the kindest of men, and he will be long remembered and mourned by a wide circle of friends and patients.

Dr. Steven was educated at Glasgow Academy, and it was there that he acquired the great liking which he possessed for English literature. As a student of medical literature, Steven had a wide knowledge of the earlier medical writers, as was shown by his address on Morgagni, when president of the Medico-Chirurgical Society, and most fittingly he was Hon. Librarian to the Faculty of Physicians and Surgeons. He had no hobbies except that of reading, but he was fond of travel, and regularly attended the meetings of the International Medical Congress. In his earlier days he studied at Berlin, Leipzic, and Paris, and acquired a good working knowledge of German and French.

Much might be said of Lindsay Steven, and no doubt will be said, as an accomplished physician and highly popular teacher of medicine. I would rather speak of him as the genuine man and the sincere friend. He had deep religious convictions, and was strongly attached to the church of his fathers—the old United Presbyterian Church. For many years he conducted a senior class for lads in connection with St. Vincent U.F. Church, of which he was an elder. His memory will long remain green in the city of his birth.

W. G. D.

HENRY E. CLARK, C.M.G., M.R.C.S. Eng., F.F.P.S. Glasg., F.R.C.S. Ed. (Hon.)

A WELL-KNOWN and respected member of our medical school has passed away by the death of Mr. Clark on the 3rd of last month.

Henry Edward Clark was born at Wootton, Wawen, Co. Warwick, in 1845, and received his early education at the Grammar School at Stratford-on-Avon. Becoming a medical student at the Andersonian University, he qualified in 1870 as L.R.C.P. Ed. He obtained his M.R.C.S. Eng. in the following year, and in 1876 was admitted a Fellow of the Faculty of Physicians and Surgeons. After passing through the junior ranks of the Royal and Eye Infirmaries, he ultimately became surgeon to both of these institutions, retaining his post in the former till the year 1906, when he retired under the age limit regulation.

For many years a teacher at the Royal Infirmary, he became known to a wide circle of students. His work as a teacher began when he obtained a demonstratorship of anatomy in the Andersonian under the late Professor George Buchanan, and when the Royal Infirmary School of Medicine was opened he was appointed to it as Lecturer on Anatomy. He retained this appointment for many years after he had become a surgeon to the Infirmary, and when, in 1889, the School was incorporated as St. Mungo's College, he became its first Professor of Anatomy. On the removal of Sir William (then Dr.) Macewen to the University in 1892, Mr. Clark succeeded to the Chair of Surgery, which he held till his retiral in 1906 from the Infirmary.

When the Scottish National Red Cross Hospital was equipped and sent out to South Africa, Mr. Clark went with it as senior surgeon, and for his services at this time he received the C.M.G., the Queen's South African Medal, and the Cross of Associate of the Order of St. John of Jerusalem in England.

He was elected to, and held for two years (1903-04), the Presidentship of the Faculty of Physicians and Surgeons, and he filled at different periods the presidential chairs of three of the medical societies of this city. In 1905 he was made an Honorary Fellow of the Royal College of Surgeons of Edinburgh.

The present series of this *Journal* began in 1868 under the editorship of the late Dr. J. B. Russell. Dr. Russell was succeeded in the editorial chair in 1875 by Mr. Clark, who occupied it till 1878, when he in his turn was succeeded by the late Dr. Joseph Coats. The conducting of a journal was not, however, sufficient to absorb the whole of Mr. Clark's energies. He edited no less than three editions (ninth, tenth, and eleventh) of Wilson's *Anatomist's Vade Mecum*, which may be truly said to have been one of the most popular student's text-books of its day. He was a regular and enthusiastic attender at the meetings of the medical societies, to which he contributed a large number of papers.

He was long the subject of chest trouble, but he enjoyed fairly good health in the first half of this winter. He felt out of sorts on the evening of 29th January, and his condition became grave two or three days later when the signs of pneumonia developed, and on the afternoon of 3rd February he passed away.

He is survived by a widow, three daughters, and a son, Dr. George H. Clark, and to them we tender our respectful sympathy.

The writer of this notice was a student in Mr. Clark's anatomy class in 1886, and the friendship begun then continued up to the last. The friendly help extended to a beginner in anatomy, the many pleasant chats on literary and other subjects, Clark's devotion to his family, and his reverential attitude to sacred things, all combined, with his power of elucidating the difficulties connected with his subject, to furnish a picture not soon to be eliminated from the memory.

LIEUT.-COLONEL ROBERT POLLOK, M.B., F.F.P.S.G.,

COMMANDING NO. 4 SCOTTISH TERRITORIAL GENERAL HOSPITAL.

WE regret to have to record the death of another well-known practitioner in the person of Dr. Robert Pollok, who passed away on the 11th of last month. Dr. Pollok was a native of Tarbolton, and received his schooling in Ayr, after which he studied medicine in the University of Glasgow. After graduating in 1876 he visited several of the leading Continental medical schools, and on his return to Glasgow he assisted for some time the late Dr. James Morton, Surgeon to the Royal Infirmary. He subsequently commenced practice on the south side of the river, where he soon became one of the best known practitioners. The medical affairs of his district of the city excited his keen interest, and along with others he was instrumental in the movement which culminated in the erection of the Victoria Infirmary, of which he became a member of the Board of Directors. Subsequently he held the office of Physician to the Samaritan Hospital.

He did a great deal towards founding and equipping the Southern Medical Club, and the Southern Medical Society recognised his services by electing him their president. But Dr. Pollok's energies were not confined to one district. Recognising the importance of obstetrical matters to medical practitioners, he took a share in founding the Obstetrical and Gynæcological Society.

Another outlet for his energy was volunteering and the ambulance work so closely associated with it. In 1888 he joined the 3rd V.B.H.L.I. (The Blythswood Rifles) as surgeon-lieutenant, and reached the rank of surgeon-captain three and a half years later. After the South African War broke out he volunteered for active service, and in 1900 was sent to the Cape in medical charge of troops on the transport "Cavour." After landing he was appointed to charge of wards in the Woodstock Hospital, Capetown, but was subsequently sent on to Bloemfontein at the time of the epidemic of enteric fever in the Orange Free State. From here he advanced with Lord Roberts's army, being posted to the Field Hospital of the 18th Brigade, and taking part with the brigade in the advance on Pretoria and on to Komati Poort. On his return to Pretoria he was posted to No. 2 General Hospital. For his services Surgeon-Captain Pollok received the Queen's Medal with three clasps and the rank of Hon. Captain in the Army. He succeeded Lieut.-Colonel Quintin Chalmers as S.M.O. of the Volunteer H.L.I. Brigade, and when the Medical Service of the Territorial Army was organised last summer he was appointed as Lieut.-Colonel to command the 4th Scottish General Hospital.

The funeral, which was a military one, took place on 15th ult., and was attended by a large number of officers and men of the 7th H.L.I. and R.A.M.C.(T.)

His sudden death in his fifty-fifth year has a mournful interest in that, five days before, he was present at the funeral of his fellow-practitioner, Mr. H. E. Clark. Deceased was unmarried, and resided with his two sisters in Pollokshields.

Miss JANET ANN GALLOWAY, LL.D.,

Honorary Secretary, Queen Margaret College.

The sudden death of Miss Galloway on 23rd January came as a painful surprise to us all. Although her health had been failing slightly in recent months, she was able to continue to discharge her duties at Queen Margaret College until the end. On Friday evening, 22nd January, she attended the reception held in Edinburgh by Lady Marjorie Sinclair, but suddenly became ill on the way home. Feeling somewhat better on Saturday morning, Miss Galloway did some work, and no serious consequences were then anticipated. In the afternoon, however, she had a relapse, and died about half-past five o'clock.

Since 1877, when there was formed the Glasgow Association for the Higher Education of Women, Miss Galloway had been identified with the movement: and she did not rest with the conscientious performance of her official duties, but established a close personal relationship with her students, such as is given to few teachers to enjoy. When, in 1907, she received from the University the well-merited distinction of LL.D., the women students expressed their gratification at the honour and their acknowledgment of her services by presenting her with her gown and hood.

At the funeral service in the Bute Hall the large number of graduates and undergraduates, as well as of the general public, who were present constituted an eloquent tribute to the memory of one who had sunk self in seeking the good of others.

CURRENT TOPICS.

GLASGOW AND WEST OF SCOTLAND MEDICAL ASSOCIATION ("GLASGOW MEDICAL JOURNAL"): ANNUAL MEETING.—The annual meeting of the Association was held in the Faculty Hall on 29th January, Dr. John Rowan in the chair. The Treasurer's and Editors' reports were submitted by Mr. Edington and Dr. Monro respectively. The reports, both of them of a satisfactory character, were adopted, and the Treasurer and Editors were thanked for their services. The following office-bearers were elected for 1909:—

President,	DR. L. R. OSWALD.
Vice-Presidents,	MR. JAMES GRANT ANDREW. MR. ARCHIBALD YOUNG.
Editors,	DR. THOMAS KIRKPATRICK MONRO. MR. GEORGE HENRY EDINGTON.
Secretary,	DR. JOHN ANDERSON, Lincluden, Cathcart.
Treasurer,	DR. W. B. INGLIS POLLOCK, 276 Bath Street.
Auditors,	DR. HUGH GALT. DR. GEORGE BURNSIDE BUCHANAN.

General Business Committee.

DR. R. T. HALLIDAY.
DR. R. SPEIRS FULLARTON.
DR. H. H. BORLAND.
DR. LEONARD FINDLAY.
DR. J. KING PATRICK.
DR. E. H. L. OLIPHANT.
DR. JAMES W. ALLAN.
DR. GEO. A. ALLAN.

THE "MEDICAL REGISTER."—The following important letter has appeared in the lay as well as in the medical press:—

GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION OF THE UNITED KINGDOM.

299 OXFORD STREET,
LONDON, W., *3rd February, 1909.*

SIR,—A very searching inquiry is now being made as to the accuracy of all names and addresses on the Medical Register under the following Section (xiv) of the Medical Act, 1858: —

> "XIV. It shall be the duty of the registrars to keep their respective registers correct in accordance with the provisions of this Act, and the Orders and Regulations of the General Council, and to erase the names of all registered persons who shall have died, and shall from time to time make the necessary alterations in the addresses or qualifications of the persons registered under this Act; and to enable the respective registrars duly to fulfil the duties imposed upon them, it shall be lawful for the registrar to write a letter to any registered person, addressed to him according to his address on the register, to enquire whether he has ceased to practise or has changed his residence, and if no answer shall be returned to such letter within the period of six months from the sending of the letter it shall be lawful to erase the name of such person from the register, provided always that the same may be restored by direction of the General Council should they think fit to make an order to that effect."

On 1st February a circular of inquiry was posted to every registered practitioner, excepting only officers of the navy, army, and Indian medical services, whose names appear in the navy and army lists.

It is of vital importance to all registered practitioners who have not received an inquiry in course of post that they should immediately communicate with this office, as in the event of no communication being received from them it will be lawful to erase their names from the register, according to the Act, and then very serious disabilities will be incurred.—
I am, &c., H. E. ALLEN, Registrar.

It may seem unnecessary to emphasise the importance of the contents of this letter; but we have known of a prominent member of the profession in Glasgow whose name was, some years ago, erased from the register, without his being aware of the fact. His attention was first drawn to the circumstance when a friend jestingly inquired what offence he had committed to cause him to be struck off the register. The explanation of the fact lay in his having changed his address without intimating the same to the registrar, and a communication which the latter had posted to the old address had not been forwarded, and so remained unanswered.

Summerton School for Invalid Children.—The Govan School Board is to be congratulated on the new school which has just been opened in Ibrox, the opening ceremony being performed by Her Grace the Duchess of Montrose. In addition to the classrooms, which are capable of seating 170 children, there are two central halls, a dining hall, cloakroom, lavatory and bathroom accommodation, kitchen, and a suite of rooms for the teaching of household management.

The school is intended for two classes of children—the mentally and physically deficient—and the general arrangements are such that the two classes are kept quite separate. Besides playgrounds, there is, adjoining the school, a playing field to which access will be had in summer weather. The estimated cost of the buildings is £11,600.

Matriculated Students at the Universities of Glasgow and Edinburgh—Twenty Years' Statistics.—The following is a statement of the numbers of matriculated students at Glasgow University for the past twenty years:—

Year.	Arts.	Science.	Divinity.	Law.	Medicine.	Total.
1889	996	...	95	192	818	2101
1890	998	...	88	197	770	2053
1891	972	...	93	206	820	2091
1892	941	...	89	205	760	1995
1893	780	129	90	193	695	1887
1894	677	119	71	186	618	1671
1895	611	113	61	182	617	1584
1896	571	123	62	225	621	1602
1897	587	112	58	211	565	1533
1898	634	147	54	215	557	1607
1899	654	166	41	213	590	1664
1900	673	160	41	200	584	1658
1901	661	183	51	196	588	1679
1902	687	198	53	191	642	1771
1903	681	238	49	193	604	1765
1904	688	248	51	187	639	1813
1905	684	248	43	208	645	1828
1906	700	274	56	203	626	1859
1907	688	321	59	234	622	1924
1908	695	347	60	214	606	1922

Decrease from 1907, 2, made up of 20 Law, 16 Medicine—36; less increase of 7 in Arts, 26 in Science, and 1 in Divinity—34. Net diminution during the twenty years, 179, made up of 301 Arts, 35 Divinity, 212 Medicine—548; less students in Science, 347, and an increase of 22 in Law—369.

The corresponding figures for Edinburgh University are as follow:—

Year.	Arts.	Science.	Divinity.	Law.	Music.	Medicine.	Total.
1889	981	...	124	472	...	2025	3602
1890	940	...	116	448	...	1979	3503
1891	942	...	88	485	...	1839	3354
1892	881	...	82	460	...	1715	3138
1893	738	156	79	452	...	1641	3066
1894	639	150	68	454	4	1494	2809
1895	550	132	71	438	3	1475	2669
1896	572	145	62	439	4	1415	2637
1897	586	149	60	390	5	1417	2607
1898	627	142	63	373	16	1381	2602
1899	626	173	47	368	5	1390	2609
1900	627	158	40	348	4	1325	2502
1901	658	163	29	402	6	1399	2657
1902	610	194	40	386	6	1381	2617
1903	610	232	50	352	9	1437	2690
1904	592	224	47	341	8	1476	2688
1905	646	281	52	320	6	1475	2780
1906	611	281	56	311	12	1465	2736
1907	620	275	63	301	6	1423	2688
1908	651	279	62	301	9	1431	2733

Increase from 1907, 45, made up of 31 Arts, 4 Science, 3 Music, 8 Medicine—46; less decrease of 1 in Divinity—1. Net diminution during the twenty years, 869, made up of 330 Arts, 62 Divinity, 171 Law—1157; less students in Science, 279, and students in Music, 9—288.

The above figures do not, in the case of either university, include students enrolled in single classes on payment of 5s. entrance fee, nor do they include women students. For the current session 679 women (an increase of 54) are matriculated at Glasgow, and 595 (an increase of 5) at Edinburgh. The Faculty of Science, constituted in 1863, embraces students who in former years were included in Arts or Medicine, so that the diminution since 1893 in these faculties is not so great as might at first sight appear.

Finances of Royal Infirmary.—At the annual meeting of qualified contributors to the Infirmary, held on 25th January, an unusual and important proposal of trenching on capital was under consideration. The chairman of the Board of Managers (Mr. J. D. Hedderwick) moved—"That in view of the exhaustion of the money in hand from the Supplementary (1904) Fund for the reconstruction of the Royal Infirmary, the Court of Contributors authorise and instruct the Managers to take from Stock Account a sum of £150,000, in such amounts as may be required from time to time, and apply the same towards carrying out the scheme of reconstruction." Mr. Hedderwick explained that in 1897 the citizens were invited to subscribe to the reconstruction of the front block as a memorial of Queen Victoria's diamond jubilee. The cost of that proposal was put at about £100,000, and close on £80,000 was then subscribed. The whole of this fund remained in the hands of a committee, and was earmarked for its original purpose. When, later, it was found that reconstruction of the whole infirmary was unavoidable, plans were prepared which would involve quite £500,000. A second appeal was made to the public in 1904, and in response £128,000 had been subscribed. This, with interest, amounted to £138,000, but it had now been nearly all paid away; and the Managers now looked to the Court of Contributors to authorise them to trench on capital. Reckoning on a cost of £500,000, they would eventually obtain the 1897 fund, amounting now, with interest, to over £98,000. This sum, plus £138,000, would, along with £150,000 proposed to be taken from Stock Account, total £386,000. For the balance, £120,000, they must rely on the generosity of their friends. The motion was seconded by Mr. J. Glen.

Dr. Charles Workman moved as an amendment that the matter be referred back to the Managers for further consideration; but the amendment not being seconded, Mr. Hedderwick's motion was adopted.

Within a fortnight of the above meeting it was intimated that a sum of £80,000 had been promised to the Infirmary from the Dick Trust.

Fire at the Royal Infirmary.—Fire broke out in the chapel during the afternoon service on Sunday, 7th February, but happily it was got under before serious damage was done. The patients in Wards 7 and 8 were safely removed along the narrow entrance passages which skirt the chapel, and were disposed, some in the Board Room, the remainder throughout the other wards.

WESTERN INFIRMARY AND THE HOSPITAL FOR SKIN DISEASES. —Some little time ago we referred to the proposed incorporation of the Skin Hospital with the Western Infirmary. We learn that on the 9th ult. a special meeting of contributors to to the Western Infirmary unanimously approved of a draft Provisional Order giving power "to discontinue the Glasgow Hospital for Skin Diseases as a separate institution, and for the application of the property for other purposes."

ROYAL HOSPITAL FOR SICK CHILDREN.—The twenty-sixth annual report of the directors of the Royal Hospital for Sick Children, Glasgow, states that the number of cases treated during the past year was 1,078, against 1,089. Of these cases, 560 were medical and 518 surgical, as compared with 535 and 554 respectively in the previous year. The dispensary supplied 352 of the medical and 199 of the surgical cases admitted. Of the cases admitted, 178 were infants under one year and 174 were over one and under two years of age. During the year there were 166 deaths. The percentage of deaths to the total discharged was 16·41; but excluding 41 children who were so ill when admitted that they died within 48 hours thereafter the percentage was reduced to 12·36, as compared with 10·07 of the previous year. The average daily number under treatment in the hospital was 67, the same as was in 1907, and the average duration of residence of patients discharged from the hospital was 24·15 days, as against 23·83 days in 1907. The ordinary expenditure of the hospital was £4,699, 11s. 10d. The country branch at Drumchapel has proved a most valuable extension of the hospital. In all 97 patients were treated, as compared with 122 the previous year, the average daily number under treatment being 27·26, and the average residence in the branch of patients discharged being 84·4 days, as compared with 114·9 days the previous year. The ordinary expenditure of the country branch was £1,452, 11s. 8d. The total attendances at the dispensary was 50,776, against 42,302, and the ordinary expenditure of the dispensary was £1,547, 7s. 5d. more. Against this sum of £7,669, 10s, 11d., the ordinary income was £7,282, 17s. 6d., leaving a deficit of £416, 13s, 3d.

In regard to the rebuilding and extension scheme, the report states that before many months are over the erection of a new children's hospital in Glasgow will have commenced. In response to the appeal for £100,000 to enable the directors to erect a new hospital and to extend materially the hospital accommodation in the country the sum of £72,712, 16s. 10d.

had been subscribed up till the end of the year. Acting on the unanimous opinion of all their advisers, and being unanimous themselves, the directors purchased a large square —fully 10 acres—of the best and highest parts of the lands of Yorkhill as the site of the new hospital. They and their advisers are of opinion that this site complies with the requirements better than any other in the city, in respect of the extent of ground available, its exposure, openness, airiness, and elevation, its accessibility from all parts of the city by road, rail, tramway, subway, and ferry, and its proximity to the University. The site, which is at the crown of the hill, looks right across to the West End Park, the University, and the Western Infirmary. It cannot be built up, and it is higher than the site of the Western Infirmary and only a little lower than Gilmorehill. The extent of ground acquired will allow of the erection of a hospital, consisting of separate pavilions with large open spaces between, on the most approved modern lines. The directors propose to proceed with the new hospital as speedily as possible, and have appointed Mr. John James Burnet to be architect, Mr. Archibald B. Watson to be measurer, and Dr. Donald J. Mackintosh to be their expert adviser and consultant. The plans of the new hospital are in active preparation and should be in the hands of the directors within the next few months. It is proposed to make provision for a hospital which may in the future be extended to contain 300 cots, and to erect in the meantime, if funds permit, the necessary buildings for 200 cots. When the appeal for funds was first issued the sum required was stated at £100,000. The cost of acquiring such a large piece of ground as the site of the hospital has, however, been very considerably more than was then calculated upon, and with this fact before them, and now that they have been able to estimate the cost of building more accurately, it is apparent to the directors that £120,000 will be required to carry out the whole scheme as proposed. A feature of the new site which should not be overlooked is its proximity to the University and the Western Infirmary. The importance of the practical study of medical diseases of children cannot be over-estimated, but it has up till now been of necessity seriously handicapped. With the accommodation which the new building offers, situated at the very door of the University, the result to the medical school can be only for good.

APPOINTMENTS: EYE INFIRMARY.—W. B. Inglis Pollock, M.D., has been appointed Clinical Assistant to Dr. Hinshelwood; and M. Logan Taylor, M.B., has been appointed to the post of Pathologist vacated by Dr. Inglis Pollock.

Mr. W. H. Lang, M.B., D.Sc., Assistant to the Professor of Botany in the University of Glasgow, has been appointed to the Chair of Cryptogamic Botany in the University of Manchester, founded under the bequest of the late Thomas Barker, M.A., formerly Professor of Mathematics in Owens College, Manchester.

THE SERVICES.—At the recent examination for commissions in the Royal Army Medical Corps there were 51 candidates for 20 vacancies. The list of successful candidates is headed by H. S. Ranken, M.B., Ch.B. Glasg., with a total of 588 marks. Four commissions were secured by Edinburgh graduates, two by Aberdeen, and one by Dundee. Subsequently to graduation Mr. Ranken held the post of house surgeon in the Western Infirmary.

At the examination for the Indian Medical Service Mr. Berkeley Gale, M.B., Ch.B. Glasg., obtained sixth place with 3,319 marks out of a possible total of 5,100. Thirty-three candidates entered for the examination, of whom thirty-one qualified, and the first twelve were admitted as lieutenants on probation. Of these, four were graduates of Scottish universities—two of Edinburgh and one of Aberdeen. Mr. Gale heads the list of Scottish graduates.

SCOTTISH POOR-LAW MEDICAL OFFICERS' ASSOCIATION.—From the report for 1908, which has just been issued, we learn that "contra-advertising" has not been so frequently required as in previous years. Some details are given of a case of apparently wrongous dismissal of a medical officer. A warning notice was inserted in the medical journals, and only at the end of nearly twelve months was the Parish Council concerned able to get a member of the profession to take up the appointment. As a result of the action of the secretary of the Association, in giving particulars to intending applicants, he was served with a threatening letter from a firm of lawyers; but they were referred to the law agents of the Association. This happened in May last, and up till now no further communication has been received.

There was a Bill before Parliament in the Autumn Session, to amend the Local Government (Scotland) Act in matters chiefly relating to county affairs. Mr. Wason, M.P., assisted by Mr. Cross, M.P., tried to get a clause introduced to the effect that "medical officers should not be dismissed from their appointments unless by or with the consent of the Local Government Board." This was opposed by the Government, and was therefore lost. However, the report of the Royal Commission on Poor Law is expected to be presented to Parliament at an early date, and we think the Poor Law Medical Officers in Scotland may await their recommendation with confidence.

The financial position of the Association is satisfactory, there being a balance in the bank of £142, 12s. 11d. At the annual meeting Dr. Matthew Martin was presented with a suitably inscribed gold watch in recognition of his valuable services as treasurer of the Association.

MEDICAL JUSTICE OF THE PEACE.—James Ross Watt, Esq., M.B. Glasg., has been added to the Commission of the Peace for the County of Ayr.

STATE REGISTRATION OF TRAINED NURSES.—The main features of Lord Ampthill's Bill, which last year passed through the House of Lords, and which is likely to come before the Commons during the present session, are (1) the establishment of a National Council for the Registration of Nurses, the Council to consist of sixteen members, viz.:—(*a*) Three (one at least a woman) appointed by the Privy Council; (*b*) one registered medical practitioner appointed by the Local Government Board; (*c*) one medical practitioner appointed by the General Medical Council; (*d*) three medical practitioners appointed by the British Medical Association—one to be resident in England, Scotland, and Ireland, respectively; (*e*) one medical practitioner appointed by the Medico-Psychological Association; and (*f*) seven registered nurses elected as direct representatives of registered nurses (four for England, one for Scotland, one for Ireland, and one past or present matron of a public hospital for the insane, elected by the nurses on the mental register). The election of the seven direct representatives will not take place until the register is sufficiently advanced to admit of an election, and until that occurs their places will be filled by representatives of various nursing associations. (2) The foundation of two registers—one for general, and one for mental nurses. The Bill also aims at making the Council an examining board.

As only one Council is proposed for England, Scotland, and Ireland, and as it is intended that it shall meet in London and that the registrar's office shall be in London, it has been felt by many members of the Scottish medical and nursing profession that the scheme does not secure for Scotland the fullest possible benefit from a system of registration. A meeting of representative members of both professions was held on 10th December last at the Royal College of Physicians in Edinburgh for the purpose of considering the matter. The meeting agreed that the work of training nurses would be much better done if a registration authority were constituted in each country. A small committee was then appointed to draw up a scheme of registration suitable for Scotland, and report. The chief points in the committee's report are (1) the undesirability of the registration and training of Scottish nurses being controlled by a Registration Council, whose headquarters would be in London, in which Scotland is most inadequately represented; (2) the proposal to make examination by the Registration Council an essential qualification for registration is unnecessary in view of the excellence of the training given to nurses in the leading hospitals. The committee would leave examinations as far as possible in the hands of the training schools, reserving to the Council the power of supervision of such examinations; (3) the proposed fee of five guineas for examination and registration is much too heavy for the slender means of most nurses.

The committee cannot therefore recommend the nursing profession in Scotland to adopt the Bill now before Parliament. They append a draft Registration Bill for Scotland, which they recommend should be submitted to Parliament. They recommend reciprocity between the registers of the three countries.

The report of the committee was unanimously adopted at a further representative meeting held in Edinburgh on 30th January last.

Copies of the draft Bill for Scotland may be had on application to Dr. Mackintosh, Western Infirmary.

OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

SESSION 1908-1909.

MEETING III.—16TH DECEMBER, 1908.

The President, DR. J. M. MUNRO KERR, *in the Chair.*

I.—MICROSCOPICAL SPECIMENS.

BY DR. A. W. RUSSELL.

1. Decidual cast of the uterus, showing decidual cells.
2. Syncytial cells and chorionic villi from a placental polypus.

II.—FRESH SPECIMENS.

A. BY DR. G. BALFOUR MARSHALL.

1. Large broad ligament fibroid. Uterus removed with the tumour owing to dense adhesions.
2. Bilateral sarcoma of ovaries from a patient aged 21 years. Ascites present, secondary nodules in mesentery and small intestine. Swelling only noticed for seven weeks.
3. Carcinoma of the ilium from a patient aged 59 years. No bowel symptoms present.
4. Abscess of ovary.
5. Tubal pregnancy. Symptoms pointed to a torsion of an ovarian cyst.

B. BY DR. W. D. MACFARLANE.

1. Ovarian cyst with torsion of the pedicle, gangrenous.
2. Abscess of ovary.
3. Myomata enucleated from the uterus for sterility and dysmenorrhœa.

C. BY DR. A. W. RUSSELL.

Tubules of sodium acetate made by Messrs. Oppenheimer & Co.

III.—CASE OF PLACENTAL POLYPUS SIMULATING CHORION-EPITHELIOMA.

BY DR. A. W. RUSSELL.

At the meeting of this Society in January, 1901, I showed a specimen of placental polypus removed almost by a touch of the finger from a patient of 41 years of age, whose eleventh pregnancy had terminated in an apparently normal full-time labour about seven weeks before the date of operation. A noticeable feature of that case was the extreme vascularity and friability of the cervical tissue, necessitating suture of the forceps-holds.

The specimen that I show to-night, with stereoscopic photograph taken when the tissue was fresh, and microscopic sections made by the paraffin embedding process, is from a patient of 37 years of age, who had been married eleven years, and had had five children, the last three years ago. She was admitted into the Royal Samaritan Hospital under the care of Dr. Halket on 22nd July last, with a history of gradually increasing vaginal hæmorrhage for the previous eight days. Her last menstrual period occurred on 21st-25th April, so that she was presumably in the third month of pregnancy when abortion took place about 14th July. Five days after admission, on getting chloroform for examination and curetting, she had a severe hæmorrhage, and became very ill before the operation was begun, so ergotinin was given hypodermically, and the vagina was packed. The temperature at night rose to 103·8° F., and remained above 100° for a week. Three weeks later (on 8th August) under chloroform she was curetted after the usual dilatation of the cervix. Bleeding was profuse, and was only checked by clamping the cervix. Patient noticed that the least excitement brought on a gush of bright red blood. A free hæmorrhage on 1st September, and for three days afterwards, was presumed to be menstrual.

The pathologist reported on the curettings that sections showed masses of round cells and well-marked chorionic villi, decidual cells in masses surrounded by fibrous trabeculæ—possibly deciduoma malignum. On this account I was asked to see her on 7th September, with a view to transference to the surgical ward for further operation. The uterus was noted to be enlarged, not freely movable, somewhat soft and boggy to the touch, with a thickened patulous cervix. A probable diagnosis of chorion-epithelioma was given, and I decided, with the approval of the others, to do a complete abdominal hysterectomy. This was done on 11th September, and though perfect aseptic healing of the abdominal wound was not obtained, the patient was dismissed well on 17th October. The uterus, when slit open afterwards, showed a dark brown sessile tumour, nearly 1 inch in depth and more than 1 inch in width, intimately adherent to the upper and posterior aspect of the uterine cavity at the fundus. The pathologist's report on the microscopic sections was that they showed blood-clot, with large blood crystals at parts, numerous villi in various stages of degeneration, and masses of decidual cells closely adherent to uterine wall; no definite invasion of the latter.

Remarks.—Several points deserve special attention:—

1. The possible malignancy of such growths, though they are to all appearance microscopically benign in structure. This case, and my former case almost in equal degree, and most of the cases which I have been able to discover in a hurried search of the literature of the subject, have been characteristically malignant in their clinical course, and there are elements in the history of my present case that make me adhere to the belief that if the uterus had not been removed we would very soon have had a development of the true chorion-epithelioma.

2. These cases give strong emphasis to the necessity for complete removal of all decidual and placental tissue after every case of abortion. It is in the non-septic cases, where any portion of tissue is left, that such growths are most likely to occur.

3. *The best method of removal of the placental polypus.* Though complete hysterectomy has been done in this case, I am disposed to think that in such cases it would be best, first of all, to dilate the cervix sufficiently for exploration with the finger. The curette is a very imperfect means of complete diagnosis in this as in many other cases. I am very doubtful, however, whether a sessile tumour so intimately adherent to the upper part of the uterus, as appears to be the case here, would be satisfactorily removed by any means short of hysterectomy.

Dr. W. D. Macfarlane did not think, from the examination of the microscopical section, that malignant disease was present in the tissue.

Dr. G. Balfour Marshall thought the interesting point in the specimen is that it is sessile in character, thus presenting the characters of a simple polypus. The wall of the uterus does not show any invasion by chorio-epitheliomatous tissue. The proper treatment in this case seems to have been that of hysterectomy.

The *President* said the microscopical sections do not show malignant invasion, although, clinically, the case closely resembles chorio-epithelioma. In some cases there may not be any invasion of the uterine wall. The only way of making sure is to introduce the finger into the uterus and curette, having the tissue examined microscopically. The best plan is to do hysterectomy when in doubt of the malignancy of the condition.

IV.—CASE OF INTERSTITIAL PREGNANCY.

By Dr. A. W. Russell.

Interstitial, sometimes called tubo-uterine, pregnancy is the most dangerous form of tubal pregnancy, and the most difficult of diagnosis. It is also, fortunately, the rarest. Howard Kelly, when he published the first edition of his well-known *Gynecology*, had not seen a case. Werth had a similar experience in 100 cases, while Martin reported only 1 in 77. Its fatality is sufficiently illustrated in the report of Rosenthal of 20 cases of interstitial pregnancy, all of them fatal.

In discussing its definition, someone has wittily said that though this form of pregnancy is ectopic, it is not, strictly speaking, extrauterine. A sensible definition might be given of it as the form of ectopic pregnancy which originates in the part of the tube lying in the muscular tissue of the uterine cornu. Its clinical diagnosis before operative inspection is, of course, impossible, except as a matter of presumption. It was sometimes stated to be much later in rupture, but recent statistics, quoted in Dr. Munro Kerr's book on *Operative Midwifery* from Werth's article in Winckel's monumental *Handbook*, show that, of 32 cases of ruptured interstitial pregnancies, 18 occurred by the end of the third month.

Though the ovum may occasionally develop inwards towards the uterine cavity, and, reaching it, the fœtus may ultimately escape by the vagina as if it were an ordinary incomplete abortion, it usually grows towards the abdominal cavity, and at a varying stage of its development breaks through its coverings, the fœtus escaping into the abdominal cavity, as in the case now to be described. Its proximity to the branches of the uterine as well as the ovarian arteries, as well as the fact of rupture being often later than in the other varieties, explain the greater risk of severe hæmorrhage in such cases.

Mrs. H., aged 28, married two years but never before pregnant, was seen by me in consultation with her doctor on 20th November on account of abdominal pain that had troubled her for five days. She had not menstruated since 23rd June, and there had been no vaginal discharge of any kind in the interval until the present attack of pain. Two months ago she had an attack of severe abdominal pain during the night, and this did not quite abate for about three weeks. There was no faintness, but she had retching and vomiting for three days. One month ago she had a similar, but less severe, attack of pain during the night, passing off in three days without faintness or shivering. On Sunday, 15th November, violent pain attacked her in bed, and on Monday there was vaginal hæmorrhage, and a large clot was discharged. The hæmorrhage stopped next day, but during the two following days retching and vomiting recurred. At this time a triangular piece of decidual cast was removed from the vagina by her doctor when he was examining her. When we saw her together on the following day (20th November) she was looking very pale and ill, and had a rapid pulse and elevated temperature. The abdomen was distended, rigid, and very tender, so that bimanual palpation was out of the question. She was admitted into the Royal Samaritan Hospital the same evening, and her pulse on admission was noted as 140, and her temperature 101·4° F. There were V.S. and V.D. cardiac murmurs (at aortic area). There was pus in the urine. The breasts were enlarged, the areolæ were dark, and milky fluid could be expressed. As there had been slight improvement in the appearance and strength of the patient, it was decided to wait, but patient was sick during the night and grew worse during the day, rejecting everything, even the bits of ice given. Temperature and pulse were still up, but a catheter specimen of urine showed neither blood, pus, nor albumen. It was decided to operate, and on 22nd November, on the second day from admission, the abdomen was opened. It was possible to palpate the abdomen properly for the first time under the anæsthetic, and two masses were now felt, one on the extreme left and the other to the right of the middle line. That to the left was found to be a fœtus 10 inches in length, lying among coils of the bowel, the other was the enlarged uterus, showing a big ragged rupture on its right cornu. There were signs of peritoneal irritation where the fœtus lay, and there were adhesions of the uterus to the parietal peritoneum and of the right tube to neighbouring structures. Large quantities of dark blood-clot had to be scooped out of the abdominal and pelvic cavities. The umbilical cord still connected the cavity with the fœtus, which, however, had evidently died some days ago, as it showed signs of maceration, and at least two loops of bowel were partially constricted by it. This probably accounts for the persistent tympanitic distension. From the intimate relations of the fœtal envelopes and the placenta with the uterus it was now fully realised that this was a case of interstitial pregnancy. The elongated, undilated right tube external to the gestation sac was divided. The whole mass was then excised along with a wedge-shaped part of the uterus which included the tube. In the haste to complete the operation I unfortunately omitted to note the exact relation of the round ligament, but I am certain it was not external to the gestation sac. The other tube and ovary were healthy, and were not touched, and the right ovary was also left as well as the right tube, though it had now no uterine attachment.

The deep uterine surfaces of the wound were brought together by buried interruted catgut sutures, and the peritoneal edges were united by a continuous catgut suture. Towards the close of the operation it was considered desirable to give a submammary transfusion of nearly two pints of normal saline. After washing out the abdominal cavity with the warm saline solution, the abdominal wall was closed in three layers in the usual way. The patient got on as well as could be expected in one so weakened by previous hæmorrhage and the operation shock, the wound healing satisfactorily, but on the ninth day some swelling of the left leg and foot suggested the onset of a thrombosis, which is now gradually passing off. Probably this was associated with something in the pelvis, and it explains the persistence of the irregular temperatures seen on the chart. Though the patient seemed to be seriously drained of her vitality by so great a loss of blood, and her recovery has been delayed by the phlebitis, I am sure that she will completely regain her former health.

Dr. G. Balfour Marshall asked if there was much hæmorrhage from the wound in the fundus of the uterus.

The *President* thought it a very rare specimen, and the case a very successful one, as the mortality is high. He had experience of a case some years ago, where he had to remove the uterus with the sac owing to the density of the adhesions. These cases of extrauterine pregnancy are of interest, owing to the similarity of the symptoms in each variety. The rupture of the sac takes place much earlier than is generally supposed. The ideal treatment is that carried out by Dr. Russell, namely, the removal of the sac without the uterus. The risk of future pregnancies may arise if a piece of the cornu of the uterus is excised with the sac. In some cases the uterus may have to be removed with the sac, owing to the difficulty in arresting hæmorrhage.

Dr. Russell replied that in his case there was no trouble from hæmorrhage.

(The report of this Meeting will be continued in our next issue.)

REVIEWS.

Glasgow Corporation: Report of the Medical Officer of Health of the City of Glasgow for 1907.

In the first section the ever-increasing discrepancy between the population as estimated by the Registrar-General on the one hand, and the Medical Officer of Health on the other, is brought out, with the resultant effects upon the calculated death and other rates.

The birth-rate during 1907—viz., 29·655 per 1,000—is the lowest on record, and the same applies to the marriage-rate. Although the birth-rate for Glasgow exceeds that of the other large towns in Scotland, it is continuously lower than that of Liverpool, a difference which would probably be explained by a comparison of the age distribution of the two populations.

Infantile mortality also claims attention. This has decreased since the period 1896-1900, and in 1907 amounted to 129 per 1,000 births. Comparing this with other large towns, the rate in Glasgow is higher than the Scottish towns, but lower than a number of the large English towns, with the exception of London itself. As to the incidence in the various wards of the city, there is remarkably little difference, although Cowcaddens heads the list with 172 per 1,000.

With regard to infectious diseases, it is interesting to note that typhus fever has become practically extinct. Diphtheria is also reduced, while both enteric fever and scarlet fever are rather more prevalent. Cerebro-spinal fever showed a considerable increase over the average of recent years.

On page 44 there is an exceedingly interesting note on the excessive mortality due to non-notifiable diseases, such as whooping-cough, measles, and diarrhœa.

In the section on cerebro-spinal fever will be found an account of the serum treatment of the disease, contributed by Drs. Currie and M'Gregor, and it is singular to note that while the observers could not discover any diminution in case mortality when this treatment was employed, they were able to affirm that cases thus treated who survived the first ten days of the disease had a better chance of complete recovery.

On page 90 are advanced cogent arguments for making whooping-cough one of the notifiable diseases.

The incidence of phthisis and other tuberculous diseases in the various wards shows Calton, Blackfriars, and Cowcaddens in order at the head of the list; while taking all causes of death, Broomielaw tops the list.

On page 107 there is a rather disquieting paragraph on the presence of tubercle in the milk supplies of the city, but the possibility of aërial infection of the milk is properly pointed out.

During 1907 no fewer than 886 of the population of the city were displaced by the closing of 128 houses of one apartment, 141 of two apartments, and 8 of three apartments. It can only be expected, as our ideas of what makes a dwelling habitable soar upwards year by year, that this figure will probably increase for many years without showing any real backward development in the housing of the lower classes.

On pages 168 and 169 will be found a somewhat lengthy statement regarding the question of the "model" as a factor in the problem of housing. The results tabulated by Dr. Chalmers on page 169 are interesting and instructive in the extreme, and should be read with the greatest care by everyone interested in this great problem. In the main there can be no doubt that the deductions of the Medical Officer of Health are correct, but the remedy is not so clear. At the same time this question must be faced, and Dr. Chalmers has laid the city under an obligation by fearlessly pointing out the evils of encouraging the shirking of civic responsibility by the facilities afforded by the "models" to a class which never should have been permitted to take advantage of these facilities.

The Practical Medicine Series. Vol. IV: Gynæcology. Vol. V: Obstetrics. Chicago, 1908. (Sole Agents in Great Britain, G. Gillies & Co., 28 Gibson Street, Glasgow.)

THERE are ten volumes of *The Practical Medicine Series,* which appear annually, each volume being devoted to a special branch of medicine or surgery. Vols. IV and V deal respectively with gynæcology and obstetrics.

The editors have made a judicious selection out of the large amount of literature to be found in various American and European journals, and, as little that is important has been omitted, much valuable information relating to the year's progress in gynæcology and obstetrics will be found compressed within the 200 pages of each volume. We can cordially recommend them especially to the busy practitioner who desires to keep up to date with current literature, but has little or no opportunity of reading the original articles. The price (5s. each volume) is moderate.

Your Child's Health. By John Grimshaw, M.D., B.Sc., D.P.H.
London: J. & A. Churchill. 1908.

This is a closely printed handbook of over 140 pages, containing concise notes on practically all the subjects relating to the health of infants and children, and designed for mothers and teachers, school nurses, and health visitors. As Sir James Barr, who has favoured the author with a short introduction, points out, "there is the broad question to be considered as to how far the public can be advantageously recommended to study medical works. There can be no doubt that a little knowledge is a dangerous thing, especially in its application, but in no part of Dr. Grimshaw's work is the amateur advised to trifle with his own health or that of his friends; the danger signals are clearly pointed out, so that the lay person may perceive the necessity of seeking medical advice. Dr. Grimshaw gives advice and instruction which can be properly carried out by the individual, and leaves the medical adviser supreme in his own province."

With this statement no one can take exception, and those who have much to do with the rearing and training of children will find the book an excellent guide in their many difficulties, the indications being clearly given when a mother or nurse, properly instructed, may rely upon herself, and when a skilled physician must be called to attend.

The publishers intimate that any portion of the book can be supplied in leaflet or pamphlet form, the book having been so arranged and printed as to readily permit of this being done.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

MEDICINE.

A Study of Thomsen's Disease (Congenital Myotonia) by a Sufferer from it. Arthur Birt, M.D.Edin. (*Montreal Medical Journal*, November, 1908).—The writer here describes congenital myotonia as occurring in himself and his own family group. He emphasises the rarity of it, quoting Dr. Hale White, who refers to it as probably "the rarest disease in medicine." The diagnosis was made by the writer while still a medical student in Edinburgh, and has since been confirmed by experts.

History.—Ever since he can remember he has been afflicted with painless stiffness and cramp on first attempting any voluntary movement. This stiffness affected all his muscles, and gave his initial movements a peculiar clumsiness, but quickly wore off on continuing the movement—*e.g.*, running. He often suffered falls and minor injuries, the result of his inability to limber up his muscles quickly. Rather unusual strength and muscularity appeared early, but he tired easily. There was never any pain, only a tense, cramp-like feeling during the limbering up process. He was nervous and highly strung, and mental stress aggravated the cramps. *Pari-passu* with the muscular dvelopment, the disability progressed up to early manhood, since which time there has been no change.

Present condition.—Æt. 45; height, 5 ft. 8½ in.; weight, 150 lb. The patient's attitude when standing is characteristic—moderate lordosis, winged scapulæ, knees slightly bent, and arms carried slightly flexed in front of the lateral line of the body—a picture quite different from pseudo-hypertrophic paralysis or any other disease. The whole muscular system is well developed, some groups of muscles, however, better than others; the neck is long and thick; the fore-arm muscles, glutei, vasti, internal obliques, and intrinsic muscles of the hand are those of a trained athlete, though no systematic training has been undergone. On light palpation the muscles show no abnormal firmness, but quickly harden under firm kneading, and on putting any group into strong voluntary contraction they are found for a few seconds to be of iron hardness.

Peculiarity of movement.—Entirely restricted to voluntary movements, and consists (according to Hale White) in the fact that the contraction of the muscle which the patient wills to move is slower than normal, and that, because it relaxes very slowly, it remains for some seconds more or less contracted, the contraction being so strong that the antagonistic muscles cannot overcome it. If a certain voluntary movement is repeated several times, the patient begins to execute each movement before the preceding contraction has relaxed, and thus his difficulty as regards stiffness grows less and less with each movement. All the voluntary muscles more or less involved, and in proportion to the bulk of the group involved. Thus, if he rise from a chair and walk, the advance of his first leg is checked by a painless cramp of the extensor muscles, which have been thrown into action in rising; the other leg follows before the tonic spasm has disappeared from the first, and is checked in turn by a cramp of its extensors. The second movement of the first leg is initiated before the spasm has completely relaxed, but the cramp this time is of shorter duration. With each succeeding advance of a limb the duration of the spasm becomes less, until in a variable number of strides a normal gait is evolved. While this is taking place the stiff clumsiness of the movements are very marked. Should running be suddenly attempted, the spasm is even more marked, and should he hit his foot against a stone a fresh spasm results, and he is apt to fall headlong. On changing from a walk to a run, or on starting a waltz, there is the same preliminary difficulty. On shaking hands there is inability to relax the fingers quickly. Von Graefe sign may be elicited, and the muscles of the jaw and intrinsic muscles of the tongue are affected. According to the writer, and contrary to the opinion of other observers, certain conditions have a distinct effect on the severity of the spasm. Thus, prolonged rest of the muscles, fatigue, mental excitement, cold, and the sudden attempt to use the muscles more violently than usual, all aggravate the cramp, while small doses of alcohol undoubtedly temporarily diminish it.

Muscular strength is not, as a rule, in proportion to the size of the muscles, but in the writer's case since boyhood he has always been unusually strong muscularly, fatigue, however, ensuing more rapidly than normal. The superficial, deep, and organic reflexes are all normal, and passive movement of the limbs is free.

Electrical reactions.—These correspond exactly to those known as Erb's myotonic reaction, and are as follows:—(1) The motor nerves show no increase of irritability to mechanical stimuli; (2) to the faradic current the motor nerves are quantitatively normal, but if the current be strong the contraction lasts much longer than in health; (3) to the galvanic current the motor nerves are normal, but here also, with strong currents the contraction lasts longer than normal; (4) mechanical stimuli to the muscles induce contractions more easily than in health, and lasting from five to thirty seconds; (5) the faradic current applied directly to the muscles, if strong, sets up a contraction of from five to thirty seconds; (6) galvanic currrent applied directly to the muscles shows K.C.C. as equal to A.C.C., instead of being more easily induced as in normal people.

Myographic tracings show—(1) Prolongation of latent period; (2) a slow, powerful initial contraction taking a long time to reach the maximum; (3) an appreciable delay before relaxation; (4) initiation of the second contraction before complete relaxation of the first; (5) a number of contractions and relaxations occur before the muscle nerve becomes normal.

Histology.—A piece of muscle removed from the vastus internus showed the following points:—(1) A marked increase in size, especially in breadth, of individual fibres ($\frac{1}{150}$ to $\frac{1}{500}$ of an inch as compared with $\frac{1}{350}$ to $\frac{1}{1000}$); (2) indistinctness of striation and waviness of outline; (3) an apparent increase of nuclei of the sarcolemma; (4) an absence of interstitial change or vacuolation.

The *pathology* of the condition is fully discussed. The writer does not believe that it is purely a muscular disease, as is held by many writers, but is convinced that the nervous system plays a very important *rôle*, too little stress having been laid on other neuroses occurring in the different family groups suffering from this disease, the incidence of other neuroses in Thomsen's and his own family being at least suggestive.

Diagnosis.—In fully developed cases there can be no difficulty, but cases showing only traces of it, as in his two maternal cousins, may be puzzling, only a careful scrutiny of other members of the family serving to clear it up.

Prognosis.—Unfavourable as regards recovery; but the writer's condition is unchanged since adolescence. Considerable disability and an increased risk of accident are present.

Treatment.—Nothing has been of any help, but moderate regular exercise is most important.

Occurrence in his own family of Thomsen's disease.—One sister suffers from a trace of it. She is neurotic, and suffered from a severe form of hysteria in early life. One sister (deceased) showed it in a severe general form. She was always rather mentally defective, and died of symptoms suggesting dementia præcox. Two maternal cousins (both males) suffer from it. In one the jaw muscles alone, and in the other the arms, legs, &c., are also involved.

—J. R. C. GREENLEES.

Observations on Endemic Cretinism in the Chitral and Gilgit Valleys. By R. M'Carrison, M.B., B.Ch., Capt. I.M.S. (*Indian Medical Gazette*, December, 1908).—This paper is based on an analysis of 203 cases, comprising the total cretinous population in the Gilgit and Mastaj districts, collected by a house-to-house examination. For convenience of discussion the paper is divided into six sections :—

1. *The incidence of cretinism, and its relationship to the incidence of goitre.* —It is well known that endemic goitre, cretinism, and deaf-mutism are associated diseases. Where goitre is commencing in epidemic form the younger members are the first to suffer, but such an epidemic produces no cretins. In Chitral, where goitre is of comparatively recent introduction, but where a high percentage of children are goitrous, cretinism is uncommon ; but in Gilgit, where goitre has prevailed for centuries, much fewer children suffer from goitre and a much larger percentage from cretinism. Cretinism shows here also a marked tendency to occur in families.

2. *Goitre in the individual and in its relationship to cretinism.*—Captain M'Carrison states that endemic goitre in a child is practically never a cause of cretinism. Of the 88 cases out of his 203 in which cretinism was accompanied by goitre, with the exception of 2 cases in which the goitre was congenital, the history shows that the thyroid enlargement was subsequent to and not prior to the appearance of the cretinic symptoms. So far as his experience went, the presence or absence of a goitre is of very little importance to the child's myxœdematous symptoms ; but the mental defect is commonly greater and nervous symptoms more common in those without a goitre. Cretins are much more commonly goitrous than healthy children.

3. *Goitre in the mother and its relationship to cretinism.* —Captain M'Carrison states that while endemic goitre has so far been classed as uninfectious, his investigations have convinced him of its infectious nature, and that this view provides the best explanation of its general phenomena and of its sequel, endemic cretinism. The toxins produced by the organisms of certain infectious diseases in the mother—tubercle, erysipelas, acute rheumatism, malaria, and influenza—circulate in the fœtus, and give rise to cretinism. It is to these toxins that sporadic cretins are attributed in non-goitrous mothers ; but of all the infectious diseases which impair the unborn child's thyroid mechanism, he believes endemic goitre is the most important, and the most frequently associated with cretinism. In support of this view he states that amongst his cases only 4 per cent of the mothers of cretins were non-goitrous, and concludes that, while therefore cretinism can occur in the child of a woman free from goitre, it must be established as a rule that in endemic localities goitre in the mother is one of the most essential conditions for the development of cretinism in the child. To account for this conclusion, he explains that maternal goitres are in over 80 per cent of cases degenerate to some extent, and such an organ cannot be regarded as possessing the same potential powers of functional activity as the normal gland, Baumann having shown that a goitre contains less thyroidin than the normal gland, thus demonstrating its functional deficiency. Despite this defect, the thyroid mechanism of most goitrous women is capable of meeting the additional demands which pregnancy or other circumstances may make on it ; but there is a minority in whom this is not the case, and it this minority which constitutes the mothers of cretins.

In Gilgit succeeding generations of children have, under continuous goitrous influences, developed a degree of natural resistance, and are relatively immune to goitre. This immunity wears itself out, and from puberty onwards the disease becomes more and more frequent, until in later life about half the population suffers from it. Captain M'Carrison regards this immunity as due to the minimal action of the toxic agent on the developing fœtal organism giving rise in the child to considerable powers of resistance ; but where, owing to the insufficiency of the maternal thyroid, the toxic agencies have freer play, this action is continuous and excessive, it results in hypertrophy or atrophy of the whole or part of the child's thyroid mechanism ; and that just so far as the mother's thyroid possesses the power of response to every demand, so far we may expect her child to be born temporarily immune to goitre, with congenital goitre, or a cretin; all of these being but stages in the same process, and evidence of the relative action of the toxic agents on the unborn child's thyroid mechanism.

He illustrates these conclusions by the following cases:—(1) Mother myxœdematous—has a small goitre—suffers from tetany—family history goitrous and myxœdematous—she has had nine children, all cretins, eight dying within three years of birth; (2) mother large tumourous goitre—suffers from tetany during pregnancy—eldest son, æt. 24, typical nervous cretin and deaf-mute—eldest daughter, æt. 18, typical myxœdematous cretin—two younger children also showing signs of cretinism; (3) mother had three healthy children—she then developed a goitre, and subsequently bore a child who became a cretin at 2 years of age.

4. *Debilitating factors and their influence on the mother in producing cretinism, congenital and acquired.*—About mental disease, alcoholism, syphilis, and tuberculosis there is nothing to note. Tetany is the only important nervous disease; out of 56 mothers suffering from tetany, 13, or 23 per cent, have cretinous children.

Consanguinity.—Among the Seyds of Gilgit, who can only marry amongst their own sect, cretinism is much more common than amongst the other classes. The stock is goitre-tainted, and it is practically impossible for them to marry out of a goitrous family.

Psychic factors.—Worry, fright, mental depression, and impressions received by the mother during pregnancy have great weight as determining factors. Captain M'Carrison gives many striking examples.

Influence of maternal illness. The most important factor is undoubtedly maternal goitre, apart from which malaria, rheumatism, and arthritis deformans are those which most appear to favour the production of cretinism.

5. *Types of the disease.*—Two distinct types may be distinguished—(1) The myxœdematous; (2) the nervous.

(1) The *myxœdematous cretin* corresponds to the form chiefly met with in Europe. In Gilgit these cases are found amongst the richer families, such cretins being better clothed and fed, and their circumstances being more on a par with those of European cretins.

(2) *Nervous cretinism.*—One-third of the cases correspond to this type, the disability being especially of the central nervous system in distinction to the myxœdematous type, in which the defect is more physical. They are usually amongst the very poor. The general condition of the nervous cretin is as follows:—The skull is elongated; there is complete deaf-mutism; knock-kneed spasticity of lower limbs and inability to stand upright; if able to walk, their gait is stiff, and they walk on their toes; knee-jerks exaggerated; upper limbs bent at a right angle; wrist flexed; thumb in palm, with fingers closed over it; slow rotatory movements of head, grimaces, and coarse nystagmus or internal strabismus may be present. The swelling of the body may or may not be marked. The condition is, in fact, one of cretinous idiocy with cerebral diplegia (photograph of patient, æt. 24 years, 3½ feet in height, obviously myxœdematous, and showing all the features just enumerated).

Captain M'Carrison has attempted, without success, to find some etiological reason for dissociating the cretinoid condition from the spastic; however, the factors giving rise to the diplegia seem to be antenatal in all cases. He believes that in the nervous cases there is, in contra-distinction to the limited defect of the thyroid associated usually with cretinism, a defect involving both thyroid and para-thyroid. These latter, being in the light of recent research capable to some extent of functionally replacing the thyroid, are an added safeguard to the organism in the case of insufficiency of the thyroid, while their own insufficiency would seem in some measure to determine the occurrence of the nervous phenomena. In support of this view he quotes Murray's experiments on animals, from whom both thyroid and para-thyroids have been removed, and in whom the symptoms are practically identical with those characteristic of nervous cretinism. This opinion is further strengthened by the results of treatment, the administration of fresh and dried extract of sheep's thyroid having markedly improved the nervous symptoms. He only succeeded in getting one *post-mortem* in a nervous cretin, the thyroid gland being examined in the laboratories of the Institute of Public Health by Dr. H. Dold. There was a great increase of fibrous stroma, the glandular elements being compressed and typical vesicles entirely absent. Traces of colloid material were seen all over the section. No trace of para-thyroid tissue was found.

6. *Conclusions.*—(1) The degree to which cretinism is associated with goitre is determined by the age of the endemic, and varies with the extent to which the latter prevails among the adult population; (2) cretinism is rarely, if ever, due to the development of a goitre; (3) defective thyroid functionation in the mother is the essential factor in the production of cretinism; (4) cretinism is due to the action of toxic agents, notably that of endemic goitre on the developing thyroid of the unborn child; (5) the defect in cretinism is one of the whole thyroid mechanism—thyroids and para-thyroids—and the diversity of symptoms is due to the extent to which the defect bears on the whole or part of that mechanism.—J. R. C. GREENLEES.

SURGERY.

Why and How the Surgeon should Attempt to Preserve the Appendix Vermiformis: Its Value in the Surgical Treatment of Constipation: with a Series of Cases briefly reported. By C. B. Keetley, F.R.C.S. (*Proceedings of the Royal Society of Medicine*, Surgical Section, 10th November, 1908).—The paper is a report on Mr. Keetley's experience of appendicostomy, appendicotomy, and appendix transplantation. After an historical introduction, the uses of these operations are stated, their advantages, justification under certain circumstances, and their drawbacks are considered, and, finally, with a few details on the technique of the operation, the reports of the cases are given and commented on.

The first appendicostomy was performed by Dr. Robert F. Weir, of New York, and published in the *New York Medical Record*, 1902. This and all the other early cases were of mucous, membranous, ulcerative, syphilitic, or amœbic colitis.

In the spring of 1905 Mr. Keetley performed appendicostomy in a case of inveterate constipation, with very satisfactory result. About the same time, after reducing by laparotomy an intussusception in a child, he performed the same operation with the threefold object of (1) anchoring the cæcum to prevent recurrence of the intussusception; (2) affording a superior means of administering injections to prevent collapse; and (3) to permit the interior of the injured intestine to be laved with hot water.

In the same year, Mr. Keetley made use of the appendix as an outlet for gas and fæces, and carrying out a suggestion made by him ten years previously, and suggested the use of appendicostomy in the surgical treatment of typhoid fever.

In 1907, when treating further the subject of constipation, Mr. Keetley raised the question of substituting, in suitable cases, for appendicectomy the preservation of the appendix, and its transplantation into the abdominal wall, after correcting such faults of the organ as might be found, *e.g.*, removing concretion, undoing kinks and twists, dilating strictures, &c.

Thus the uses of appendicostomy practised or suggested up to date may be tabulated as follows:—(1) For colitis of various kinds; (2) certain forms of intussusception; (3) intestinal hæmorrhage; (4) typhoid fever; (5) cases of enterectomy and colectomy (as a safety valve); (6) intestinal distension in toxic conditions; (7) the administration of nutrient enemata; (8) constipation. And, further, it is carried out as part of the technique in transplantation of the appendix.

With regard to this latter procedure, Mr. Keetley desires to show (1) that transplantation of the appendix, so that the whole or the greater part of it lies permanently embedded in the abdominal wall, will produce the good results of excising it; (2) that it is a practicable and safe operation; and (3) that it should in many cases be preferred to appendicectomy.

Perforative appendicitis, where the organ was securely embedded in the abdominal wall, proved a "trivial malady" in one of Mr. Keetley's cases.

"In Case 32 the appendix was transplanted while still acutely inflamed. It was stiff, swollen, highly injected, and surrounded by recent sticky adhesions. This inflammation appeared to continue until, forty-eight hours after the transplantation, its apex was opened, a stricture near its base dilated with a rubber catheter, and the appendix and cæcum washed through with warm water. All pain disappeared at once, and convalescence went on without interruption."

"In one instance the organ transplanted was (1) kinked, (2) twisted, (3) strictured, and (4) it contained two small concretions."

Where a concretion is removed through a small longitudinal incision, the incision is closed by a single Lembert suture of fine catgut, and the apex of the appendix is opened at once as a safety valve.

"The inference which I draw, therefore, from experience is that an appendix transplanted is an appendix disarmed.

Is the appendix worth preserving? Sir William Macewen demonstrated that it has physiological uses, possibly of considerable importance, but it has also a great and astonishing potential surgical value, at present hardly recognised, and twice already Mr. Keetley has been unable to perform an operation which in his opinion was indicated because the appendix had been previously removed.

Further, in view of Professor Metchnikoff's belief concerning the influence which bacterial toxines have in producing the degenerations of old age, the possibilities of appendicostomy as a method by which those harmful bacteria and their toxines can be washed out of the large intestine, must not be lost sight of. Therefore, in favourable cases transplant the appendix, and then it is there if ever it should be wanted.

The technique of the operation is simple, and need not be detailed; the chief points are to carefully preserve the meso-appendix, and to avoid tension.

The results of appendicostomy for constipation are in the immediate future very good; what the ultimate results will be, and whether it will be necessary to keep the fistula permanently open in order to maintain the improved condition, it is, of course, too early yet to judge.

Strictly speaking, it is not in itself a remedy, but an operation which facilitates the employment of remedies.

"To the value of appendicostomy in the treatment of various forms of colitis ample testimony has been borne by various authors, and it is confirmed by cases in my own series."

"In intussusception the value of appendicostomy is obvious."

Of its use in typhoid fever there is as yet no experience recorded; while of its use as a safety valve in cases of distension Mr. Keetley has not found it of much value.

Thereafter there follow notes on thirty-four cases in which the operations of appendicostomy and appendix transplantation have been performed by Mr. Keetley. These reports make very interesting and suggestive reading, and in the discussion which followed, the importance of the subject is freely granted; though it is very unlikely that in cases of fulminating appendicitis operators will be easily convinced that transplantation is an advance on appendicectomy, and the report on the curved, adherent, twisted, strictured, and concretion-containing appendix will rather support the view that such a damaged member would be better away altogether, and at the earliest possible date.—W. Rankin.

The Transplantation of Limbs. By Alexis Carrel, of New York (*Revue de Chirurgie*, December, 1908).—In April, 1907, Carrel observed a true healing process taking place between a leg amputated from one dog and transplanted to the stump of another dog in which an amputation of the corresponding limb had been performed at about the same level. The operation was performed without any special antiseptic precautions, and after all the corresponding strictures had been stitched together, the skin was finally stitched, and no drainage allowed for. The limb was thereafter immobilised with plaster of Paris. Circulation was re-established in the amputated limb three hours and ten minutes after the death of its owner. Suppuration ensued, not at the site of the line of suture, but deeply near the attachment of the thigh muscles to the pelvis, and in spite of free drainage the dog died on the tenth day.

The examination showed firm and good union of the soft parts at the line of suture, but round the line of suture of the bones there was a large abscess cavity. The transplanted limb was in excellent condition, and it was evident that with more careful technique, successful transplantation could be effected.

After several attempts, the difficulties of sepsis and of keeping the limb immobilised were finally overcome, and in April, 1908, Carrel succeeded in transplanting a limb from one fox terrier to another dog of the same breed. The details of the operation and observations on the return of the circulation are shortly given. Fifteen days after the operation the new limb was perfectly united by first intention to the stump of its limb, and no one whose attention had not been drawn to certain small details would have suspected that the limb was really a transplanted one.

Shortly thereafter the dog, unfortunately, developed broncho-pneumonia, and twenty-one days after the operation succumbed to it. The *post-mortem* examination confirmed this as the cause of death, and showed, further, that perfect bony union had resulted. As the circulation had remained perfect up till death, it is very possible that had the animal lived it could have made use of the transplanted limb, though, of course, at the time of death there was no restoration of function proved in the united muscles and nerves.

Carrel does not think that any phenomena of cytolytic action will interfere with such transplantation operations. Should future experiments demonstrate restoration of nerve and muscle function, then in all probability such transplantation operations will be done on men, and there is no doubt that the operation will be a much simpler one to perform than that which Carrel has described. Experiments have shown the possibility of preserving living tissues for a long period against the action of autolytic and microbic fermentations, and all this goes towards the solution of the problem.—W. Rankin.

On the Speedy Recovery of Patients after Abdominal Section by Shortening the Stay in Bed. By Kümmell, of Hamburg (Report, Sociétés Savantes, *Revue de Chirurgie*, December, 1908).—Since January, 1908, Kümmell has been getting his patients up out of of bed between the first and third day after operations of all kinds, from herniotomies to gastro-enterostomies. This procedure favours the action of the heart, and so diminishes notably the dangers of embolism ; it prevents constipation, and adds greatly to the patient's comfort ; it shortens the duration of convalescence, and the wound cicatrices are even stronger than after a prolonged period of rest.

The cases must, of course, be selected. Those are suitable in which the operation has been quickly and cleanly performed, without loss of much blood, and where there has been no after-sickness.

Post-operative thrombosis and embolism. By Fränkel.—There are two varieties—the first, due to sepsis, and affecting the vessels in the field of operation; the second, appearing away from the site of operation—usually in the left femoral vein—and apparently not arising from sepsis in the wound. This variety has been said to be due to the poor condition of the patient's health, to the prolonged dorsal decubitus, to the effect of the anæsthetic on the patient's heart, &c. All these views are, in Fränkel's opinion, wrong; it is really a late manifestation of a low form of sepsis in the wound, or of septic absorption from a partially paralysed gastro-intestinal tract.

Ranzi, from von Eiselberg's clinique in Vienna, discusses the same question, and analyses fifty-seven cases. By far the most frequent cause was previous valvular disease. Apart from this, the accident occurred most often after prolonged and serious operations. Eiselberg gives to such cases a preliminary course of digitalis, and after operation he orders massage, frequent change of position of the upper part of the body, respiratory gymnastics, and relaxation of the muscles of the legs (obtained by placing pillows beneath the knees). He does not, however, favour, Kümmell's method.

Trendelenburg's operation is indicated in very rare cases.—W. Rankin.

MATERIA MEDICA AND THERAPEUTICS.

Serum Treatment of Gonorrhœa, with Report of Cases. By Robert H. Herbst, Chicago (*Journal of American Medical Association*, 23rd May, 1908).—The writer first details the mode of preparing the antigonococcic serum, and method of administration of it by subcutaneous injection. He then reports shortly the treatment of 52 cases, including almost every form of gonorrhœal infection, and draws the following conclusions:—(1)The serum has no effect on acute gonorrhœal infections, whether they exist in the lower urinary tract or in any other part of the body; (2) its value in subacute and chronic cases is very doubtful; (3) in the treatment of chronic gonorrhœal joints it is unquestionably valuable.

—R. Speirs Fullarton.

Clinical Observations on Antigonococcic Serum. By Alex. A. Uhle and William H. Mackinney, Philadelphia (*Journal of American Medical Association*, 11th July, 1908).—The experiments here reported were carried out on a series of 23 cases, of which 12 were confined to hospital, and 11 were ambulant cases. The serum used was supplied by Parke, Davies & Co., and prepared from the sheep immunised against several strains of gonococci. The serum appears to have had little, if any, curative action on the urethral infection, improvement in the urethral condition in some patients being attributable more to rest and hygienic treatment than to any specific action of the serum. None of the patients suffering from gonorrhœal prostatitis were cured. Of the seven cases of epididymitis, improvement was observed in three, no improvement in four. These three patients were confined to bed, with elevation of the scrotum, and it is doubtful if the improvement can be attributed to the serum alone. The best results were obtained in the patients suffering with arthritis. Three were promptly relieved, and all local evidences of inflammation had subsided in less than two weeks. In one of these Bier's treatment was used in conjunction. Following the use of the serum injections, a general urticarial eruption was observed in seven patients. Other than slight pain at the site of injection and the urticarial eruption accompanied by intense itching, no local or toxic manifestations were observed.—R. Speirs Fullarton.

Gonococcus Vaccine in Gonorrhœal Affections of the Genito-urinary Tract. By Noah E. Arnstam, Detroit (*Journal of American Medical Association*, 24th October, 1908).—This paper reports the results of opsono-therapy in 54 cases, comprising acute and chronic gonococcic urethritis, and various complications thereof. The writer concludes that—(1) In acute cases the vaccine acts beneficially, and the time necessary to cure the disease does not exceed four weeks; (2) in some of the complications of gonococcic urethritis, such as epididymitis, cowperitis, acute prostatitis, and adenitis, it may be considered curative; (3) no other treatment, systemic or local, is necessary—irrigations and injections may be dispensed with; (4) in chronic cases it is inert and acts indifferently owing to the fact that in these conditions one has to deal with a mixed process; (5) by bringing into view latent conditions, it is an important diagnostic means in deciding whether a given case has been cured.—R. Speirs Fullarton.

The Inoculation Treatment of Gonococcus Vulvo-Vaginitis in Children. By Frank S. Churchill and Alex. C. Soper, Chicago (*Journal of American Medical Association*, 17th October, 1908).—In this paper the writers refer at the outset to the obstinate nature and possibly serious consequences of gonococcus vulvo-vaginitis in children, and state that, hitherto having found all methods of treatment futile, they have had to be content to let the infection wear itself out. They report their treatment, in the Cook County Hospital, of 41 patients, by injections of dead gonococci, but of these they were able to treat continuously only 18 patients. Other therapeutic measures—douching, &c.—were omitted during injections. Details are given of the injections, and of their effect on the opsonic index and on the vaginal discharge, and results are summarised thus:—"The inoculation treatment apparently shortens the stay of patients in hospital. Whether or not it actually lessens the total duration of the disease as compared with other methods of treatment future investigations must determine. Old strains are more effective than fresh ones. It is desirable, though apparently not absolutely necessary, to take the index while pursuing the treatment. There is no correspondence between the index and the vaginal discharge."—R. Speirs Fullarton.

The Treatment of Chorea with Chloretone. By George I. Taylor, Chester (*Folia Therapeutica*, October, 1908).—Dr. Taylor records briefly the treatment of twelve consecutive cases of chorea, not picked, varying in age from 5 to 15 years, and, with one exception, all girls. The dose of chloretone given varied from 3 grains to 10 grains three times a day, according to the age of the patient; in every case it was given with 1 drachm doses of petroleum emulsion. As soon as the slightest improvement was visible, generally in two or three days, the dose was reduced by 1 grain each dose until only 1 grain of chloretone was being given in each drachm of emulsion. After eight such doses, if the chorea had stopped, the patient was put on extract of malt with cod liver oil. The only ill effects noticed were in one case a red erythematous rash, and in another case some drowsiness.

Dr. Taylor believes that chloretone is of great value in the treatment of chorea, shortening the attack, and lessening the tendency to second and third attacks.—R. Speirs Fullarton.

Alteration of the Optic Nerve Caused by Atoxyl (*Rev. Internationale de Clin. et de Thérap.*, 1908, No. 1: abstracted in *Lyon Médical*, 25th October, 1908).—It is pointed out that such cases are numerous, and that the effects follow the injection of atoxyl in other conditions than syphilis, having been noted in lichen rubra, pemphigus, and in sleeping sickness. The signs are a pale disc, small arteries, with considerable diminution in central visual acuity.—Geo. A. Allan.

Atoxyl Poisoning (*Sleeping Sickness Bureau*, No. 1, October, 1908).—In addition to a long list of general symptoms, disturbances of vision have been frequently reported in treatment by atoxyl for trypanosomiasis and other affections in man. Six out of twenty-nine patients in one practice suffered. Patients who had received as much as 54 gm. did not suffer, while total blindness had occurred after 4 gm., the maximum single dose being 0·4 gm. In another practice 33 out of 1,135 cases treated had dimness of vision, and 14 became blind. Ophthalmic examination proved negative in some cases, but in the 6 cases above alluded to optic atrophy was noted, probably following a neuritis. In another practice, 22 patients became permanently blind, and this was attributed to large (1 gm.) and increasing dosage, which has since been stopped.

It is suggested that these serious eye affections are due to impurities in the atoxyl and not to the pure substance.—Geo. A. Allan.

Books, Pamphlets, &c., Received.

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Third Report of the Wellcome Research Laboratories at the Gordon Memorial College, Khartoum. Andrew Balfour, M.D., B.Sc., F.R.C.P. Edin., D.P.H. Camb., Director. Published for Department of Education, Sudan Government, Khartoum, by Baillière, Tindall & Cox, London. 1908. (21s. net.)

Review of some of the Recent Advances in Tropical Medicine, being a Supplement to the Third Report of the Wellcome Research Laboratories at the Gordon Memorial College, Khartoum, by Andrew Balfour, M.D., B.Sc., F.R.C.P. Edin., D.P.H. Camb., and R. G. Archibald, M.B., R.A.M.C. Published for Department of Education, Sudan Government, Khartoum, by Baillière, Tindall & Cox, London. 1908. (10s. 6d. net.)

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GLASGOW.—METEOROLOGICAL AND VITAL STATISTICS FOR THE FIVE WEEKS ENDING 27TH FEBRUARY, 1909.

	Week ending				
	Jan. 30.	Feb. 6.	Feb. 13.	Feb. 20.	Feb. 27.
Mean temperature,	38·4°	40·4°	37·5°	40·7°	39·9°
Mean range of temperature between day and night,	13·5°	20·5°	14·0°	20·2°	26·4°
Number of days on which rain fell,	2	4	3	1	1
Amount of rainfall, ins.	0·21	1·55	0·29	0·01	0·02
Deaths registered,	301	300	306	333	352
Death-rates,	18·0	18·0	18·3	19·9	21·1
Zymotic death-rates,	2·4	2·5	2·4	2·3	2·3
Pulmonary death-rates,	4·3	4·2	6·1	6·0	6·2
DEATHS—					
Under 1 year,	56	58	65	64	68
60 years and upwards,	67	80	75	78	90
DEATHS FROM—					
Small-pox,	...	...	...	...	...
Measles,	...	...	...	...	...
Scarlet fever,	2	2	2	4	1
Diphtheria,	7	6	4	9	4
Whooping-cough,	26	33	30	22	29
Fever,	3	1	2	3	5
Cerebro-spinal fever,	...	2	1	2	1
Diarrhœa,	9	9	2	6	6
Croup and laryngitis,	...	...	2	...	...
Bronchitis, pneumonia, and pleurisy,	43	57	67	75	87
CASES REPORTED—					
Small-pox,	...	...	...	...	...
Cerebro-spinal meningitis,	2	4	4	7	3
Diphtheria and membranous croup,	40	43	36	38	34
Erysipelas,	25	22	22	21	15
Scarlet fever,	85	61	75	64	81
Typhus fever,	...	...	...	...	...
Enteric fever,	16	7	17	15	10
Continued fever,	...	...	1	1	...
Puerperal fever,	3	1	2	2	4
Measles.*	21	19	23	33	21

* Measles not notifiable.

SANITARY CHAMBERS,
GLASGOW, *3rd March, 1909.*

THE

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ORIGINAL ARTICLES.

A CONSIDERATION OF SOME OF THE MORE RECENT RESEARCHES ON IMMUNITY, ESPECIALLY IN RELATION TO DIAGNOSIS AND TREATMENT.[1]

By ROBERT MUIR, M.A., M.D.,
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To give an account, even in outline, of the recent advances in immunity is no light task. The subject has become so extensive, and the number of workers so great, that more than one journal is primarily devoted to researches on the subject; those who are engaged in clinical work complain of the ever increasing complexity and the strange terminology; and even those who are actively carrying on research in this department of pathology can scarcely keep abreast with the literature. The results which have been accumulated not only constitute a great advance in our knowledge of the reactive powers in disease, but also throw an entirely new light on the vital capacities of the tissues of the body and on the structure of living matter. That in response to the introduction of an apparently limitless variety of organic molecules into the tissues there should be produced a corresponding variety of new molecules would a few years ago have been considered a wild fancy: to-day it is an acknowledged scientific fact.

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[1] An address delivered to the Medico-Chirurgical Society of Glasgow, on 22nd January, 1909.

In speaking of these matters, one might restrict oneself to the most recent work in some particular branch—it would be impossible to do more along these lines—or one might attempt to give a simple account of the general principles of immunity and of their applications. I have no hesitation in choosing the latter alternative, as I feel certain that it would be preferred by the majority of members of the society. In doing this, however, I am fully aware that I shall be speaking of matters already well known to many.

Introductory.

That an attack of a particular infective disease may confer immunity against that disease has of course been recognised by clinicians for a long period of time, as has also the fact that the degree and duration of the immunity vary in the case of different diseases. To explain these facts, and also those experimentally established by Pasteur and others of the earlier workers, various theories were propounded, such as the theory of *exhaustion* of pabulum for the micro-organisms, the theory of *retention* of products inimical to their growth, and the theory of *phagocytosis.* All these theories have now been discarded in their original form, though Metchnikoff has endeavoured to harmonise his theory of phagocytosis with the later discoveries regarding the properties of the serum. What may aptly be called the new era in this subject was introduced by the discovery of antitoxins about 1890, a discovery which also included the fact that these substances could be transferred to an ordinary animal by injecting the serum containing them: in other words, that *passive immunity* could be produced. This discovery led to further researches on the properties of the serum in immunity, with the result that a number of other substances with different properties were discovered, as will be detailed below.

We may now say that immunity in ordinary infections is due to (*a*) *reactions on the part of the cells of the body*, and (*b*) *resulting changes in the blood serum.* It will be manifest that the fundamental factor is the cellular reaction underlying the alterations in the blood, but our knowledge with regard to the nature of this is still very imperfect: advance has chiefly been with regard to the properties of the serum. For example, when an animal is immunised against a toxin, its blood comes to contain antitoxin; but even after the antitoxin has disappeared from the blood, the animal may still possess immunity for a considerable length of time. We know, however, much more of the properties of antitoxin and its mode of action than of the cellular changes giving rise to it, and of the condition of the cells underlying the immunity which persists after the antitoxin has disappeared. Such changes are of great importance, but it would hardly be profitable to discuss them at present; I shall accordingly concern myself chiefly with ascertained facts, and these relate mainly to properties of the serum.

It may be pointed out at this stage that the antitoxin type of immunity is essentially different from the state of *tolerance* which may be developed against various poisonous substances. This latter is merely an example of the property of adaptation of living matter to abnormal surroundings, and is a property of all living things. Those interested in this subject will find an excellent account of it in Metchnikoff's work on *Immunity in Infectious Diseases*. He shows in a graphic manner how various organisms may be made tolerant to substances naturally harmful to them; how, for example, amœbæ may be trained to live in a weak solution of corrosive sublimate which ordinarily would be fatal to them. In the case of the human subject tolerance to various drugs, such as arsenic, morphia, and other alkaloids, has of course been long recognised, but in such instances of tolerance no change has ever been determined in the serum of similar nature to that existing in immunity proper. As a matter of fact, no anti-substance has ever been produced by the injection of a substance of definitely known constitution. Tolerance to the action of bacterial poisons probably may be developed to a certain extent, but this is a subsidiary matter; the mechanism underlying the cure of disease and the immunity which follows is of quite a different nature.

ANTI-SUBSTANCES AND THEIR SPECIFICITY.

The changes in the blood serum, which are the indications of the immunity reaction, consist in the appearance of *anti-substances*. They are developed in response to the introduction into the body of certain molecules which are called *antigens*, and these may be in solution, as in the case of toxins, or may be constituent elements of the bodies of bacteria. It is manifest that, as a bacterium from the chemical point of view is a highly complicated structure, it may contain many different kinds of molecules which may act as antigens. Even a "toxin" does not represent a single chemical substance; both diphtheria and tetanus toxin, and, still more strikingly, snake venom, contain more than one poisonous body, and thus there may be a corresponding multiplicity of antitoxins in any given instance. A great many other kinds of molecules can act as antigens—that is, give rise to the formation of anti-substances. We may mention various ferments, foreign proteids (that is, proteids obtained from some other source than the body of the animal injected), foreign red blood corpuscles and cells of various kinds. If, however, the proteids or body cells of the animal treated be used for injection, no anti-substances are developed: in other words, the tissues of an animal do not react against its own cells. The action of the anti-substance on the corresponding antigen may be of different kinds, but in every case there is this common feature, that the anti-substance has a specific combining affinity for the antigen. If we take the simplest example, namely, that of antitoxins, we find that the antitoxin combines with the toxin so as to produce a harmless compound. An essential for the production of toxic action is that the toxin should unite with the susceptible cells of the body by means of its *haptophore* or combining group: the antitoxin combines with this same group, or fills it up, and thus prevents union with the cells. The antitoxin may be said to neutralise the toxin just as a base neutralises an acid: but there is this essential difference, that whereas an acid may be neutralised by many bases, a toxin is only neutralised by its corresponding antitoxin—that is, the neutralisation is of specific character. This specificity is the outstanding and most remarkable feature in the combination of anti-substance with antigen. It has been compared to the relation of a lock to its key, or rather of a Chubb lock to its key—only one key will fit a particular lock, only one kind of anti-substance will combine with a given antigen.

A few words may, however, be desirable regarding the exact meaning of this specificity, as the matter has an important bearing on diagnosis. As is now well known, when a particular bacterium, say the typhoid bacillus, is present in the body it gives rise to a particular kind of anti-substance, namely, an agglutinin (*vide infra*). In view of what we have stated, it might be expected that the agglutinating action would be exerted on the typhoid bacillus only. As a matter of fact, this is not the case; a typhoid serum may agglutinate

Gaertner's bacillus, the paratyphoid bacillus, and various allied organisms, though less markedly than the typhoid bacillus itself. Apparently the specificity is only relative, but a more detailed enquiry explains why this is so. The typhoid bacillus contains not one but many molecules which act as antigens, and an absolutely specific agglutination would only be got if all these antigens were peculiar to that organism. As a matter of fact, some of the antigens are possessed by the allied organisms referred to, hence the agglutination of them by the typhoid serum. If, however, we add an emulsion of the paratyphoid bacillus to the typhoid serum, and after some time centrifugalise so as to remove the paratyphoid bacilli, it will be found that the paratyphoid agglutinins have been removed; the serum now does not agglutinate the paratyphoid organism, but it still agglutinates the typhoid bacillus. This shows that in the serum there were at least two agglutinins, one acting both on the paratyphoid and typhoid bacillus, and one acting only on the typhoid. The apparent non-specificity is due to the fact that there are some molecules (antigens) common to the typhoid and paratyphoid organisms. The strictly specific relationship between an antigen and its anti-substance is, however, not invalidated: but the term "specific" is to be used in a chemical rather than in a biological sense. A similar result is obtained when the action of other anti-substances is analysed; for example, the relative specificity of precipitins has a similar explanation, to which further reference will be made later.

There has been much controversy as to the exact nature of the union of an anti-substance with its antigen, and the question is far from being definitely settled. According to some, the union is of chemical nature and is a firm one; according to others it is a weak chemical union and is reversible—the two substances can be dissociated again—whilst still another view is that the union is of physical nature and belongs to the so-called *adsorption* phenomena. This matter need not be discussed: the all-important feature is the specificity of the reaction as already described. How can this specificity be explained? How is it possible that an apparently limitless variety of molecules can be produced corresponding to the multitude of antigens? According to Ehrlich's side-chain theory, the anti-substances are not new formations, but represent molecules which are normally present in cells, these molecules being increased in number in the process of immunisation, and thrust off into the circulation —the remarkable variety of possible anti-substances has as its basis the complexity of living matter. When, say, a toxin is introduced, it combines with certain molecules in the cells, and these latter are lost for the purposes of the cells; they are then restored, and under the influence of repeated stimuli are restored in excess, and appear in the blood-stream as antitoxin molecules. The details of this theory can now be had in any text-book, but before leaving the subject I may say that it is the only theory which even attempts to give an explanation of the variety of anti-substances; on the other hand, there are facts which do not appear capable of explanation by means of it.

THE IMMUNITY REACTION.

The phenomena observed on the injection of antigens, such as bacteria or their toxins, may now be considered. After an injection has been made there is usually a latent period of two or three days during which no change is noticeable in the serum. Then anti-substances appear, slowly at first and then more rapidly, so that their amount would be represented by a curve of pretty steep ascent, the final portion of the ascent becoming more gradual. The anti-substances remain in the serum for a considerable period, but their amount gradually diminishes, and they ultimately disappear. If now, after the summit has been reached, a second injection of antigens is made, there is a sharp fall in the amount of anti-substances in the serum—the so-called *negative phase.* From what has already been stated, this will be readily understood to be due to the combination of a certain amount of anti-substance with the antigen introduced. Following upon this there occurs a fairly sharp ascent, and the curve may reach a higher level than formerly. Subsequent injections at suitable intervals have a like effect, and the immunity curve thus rises in suitable conditions by a series of ascents and shorter descents, the content of anti-substance ultimately reaching a high level. This is the object aimed at in the production of a powerful anti-serum by a series of injections, but its attainment may be interfered with by pushing the process too rapidly. If, for example, the antigens are injected in too great quantity or too soon after the previous injection, before the reacting mechanism has responded—that is, during the negative phase—the immunity curve, instead of rising, may continue to fall. It is to obviate this that Wright has introduced the method of controlling the injection of vaccines, as will be described later, by estimating the amount of opsonins—a variety of anti-substance. Not only may the immunity reaction fail to occur if the injection of antigens is made too rapidly or in too great amount, but the health of the animal may suffer and its weight may diminish. Everything goes to show that careful regulation of the dosage and the most favourable circumstances as regards general health, &c., are necessary for the optimum production of anti-substances. The production of anti-substances, which can be accurately observed by experiments on animals, also goes on in the human subject during an attack of an infective disease, and is related both to the cure of the disease and the immunity which follows. In diseases which terminate by crisis, such as pneumonia, the time of crisis corresponds with the time when the anti-substances are entering the blood in large amount, and the postponement of the crisis, for example, in alcoholics, is probably due to want of this reaction taking place.

It will be readily understood from what has been stated that the difference between active and passive immunity depends upon the source of anti-substances: in the former they are developed in the animal or person by the injection of antigens in the form of vaccines, in the latter they are transferred by means of the serum of a highly immunised animal. In the latter case the cellular reactions underlying the production of anti-substances will, of course, be wanting, and accordingly it is not surprising that passive immunity lasts a much shorter time than active immunity. Passive immunity has its practical application in the serum treatment of disease, to which further reference is made below; active immunity is developed by means of vaccines as a preventive measure in diseases such as small-pox, cholera, plague, and typhoid fever. In all these cases the virus which produces the disease is injected either in an attenuated condition or in the form of a dead culture, and in all of them favourable results have been obtained: and I may add that in all of them, after the "vaccination" has been performed, the existence of anti-substances in the serum of the patients treated has been demonstrated. (The results of anti-typhoid inoculation in the army by Wright's method, published by Colonel Leishman[1] since this address was written, show in a very striking manner the efficiency of the method, there being proportionately more than twenty times as many deaths among the un-inoculated as among the inoculated).

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[1] *Journal of the Royal Army Medical Corps*, February, 1909, p. 163.

ANAPHYLAXIS OR SUPERSENSITIVENESS.

I refer to this condition for two reasons. In the first place, it has been the subject of a great deal of controversy in recent times, and in the second place it supplies a method of diagnosis in certain diseases: it may also be the means of throwing light on certain phenomena of disease. A special susceptibility to certain poisons of the nature of an idiosyncrasy and the cumulative action of certain drugs have long been recognised, but the condition of supersensitiveness is of quite a different nature. Its chief features are that at least two injections of the toxin or other antigen must be made, that a certain interval of time must elapse between the injections, and that the sum total of toxin injected may be much less than the amount necessary to bring about toxic phenomena if injected on one occasion. The preliminary injection of a minute quantity of the toxin has thus a sort of sensitising action, so that a subsequent injection produces a very marked effect. Such a condition of hypersensitiveness has been observed after the injection of bacteria and bacterial toxins—for example, diphtheria and tetanus toxins, of animal poisons, and even of foreign sera, which are relatively inert when administered in one single dose. It is to be noted that the substances which produce hypersensibility belong to the group of antigens—that is, give rise to anti-substances. Much of the research on anaphylaxis has centred round what is known as the "Theobald Smith phenomenon," which was described by this observer in the case of the injection of horse's serum into the guinea-pig. The facts are the following:—Horse's serum when injected on one occasion into the guinea-pig, even in a comparatively large amount, appears to be comparatively inert: if, however, a minute quantity (a mere fraction of a cubic centimetre is sufficient) is injected, and about a fortnight later another small quantity is injected, the animal dies with symptoms of acute poisoning. The horse's serum would thus seem to contain a sensitising or anaphylactising substance and a toxic substance whose action becomes manifest in the sensitised animal. The state of supersensibility is comparatively long-lasting—it has been found to exist after two years—and another interesting fact is that an injection of the serum of a sensitised animal into a fresh or untreated animal produces in it the condition of anaphylaxis. In this latter respect we have a striking analogy to passive immunity by means of anti-substances. The explanation of such a phenomenon is still unsettled: according to one view it depends upon the production of anti-substances which, in association with the original antigens injected, constitute toxic compounds: according to another there is a substance in the horse's serum ("anaphylactin") which acts as a sort of chronic irritant on the cells of the body, producing an increased affinity for other molecules, these latter causing the disturbances which result in death. Signs of this serum supersensitiveness have also been observed in the human subject as the result of a second injection of horse's serum containing antitoxin, and it is quite clear that it is the serum and not the contained antitoxin which is the causal agent. Fortunately such symptoms are not usually of a serious nature, and there is no evidence that a fatal result or permanent harm follows the use of horse serum so far as the human subject is concerned. In connection with this matter reference may be made to the excellent papers by Dr. Currie, written from Belvidere Hospital (*Journal of Hygiene*, 1907).

In the tuberculin reaction in cases of tuberculosis and in the mallein reaction in cases of glanders we have phenomena which appear to be essentially of the same kind. Koch, in explaining the action of tuberculin on a tubercular focus, supposed that the toxin introduced in the form of tuberculin increased the action of the toxins diffusing from the tubercle bacilli in the tissues, and thus led to a marked inflammatory reaction at the periphery of the lesions. In a case of glanders, however, the injection of mallein produces a much greater reaction at the site of injection than it does in a healthy animal, and a similar phenomenon is even more prominently brought out in Calmette's tuberculin reaction, where the application of tuberculin to the conjunctiva of a tubercular patient produces a marked inflammatory reaction. These facts show clearly that all the tissues of the body in these diseases, quite apart from the lesions, are in a state of supersensitiveness to the corresponding toxins, and on this the diagnostic test depends. It has not been possible to transfer the supersensitiveness by injecting the serum of a tubercular into a healthy animal, and this circumstance has been regarded as constituting an essential difference from what is found in the case of serum anaphylaxis just referred to: this difference may, however, be only one of degree, and the two phenomena are probably similar in nature. One other point may be mentioned, namely, that the condition of supersensitiveness may exist whilst at the same time anti-substances are present in the blood. It is clear that the explanation of these facts is a problem of very great complexity.

Varieties of Anti-Substances.

We have now to consider the varieties of anti-substances which may be developed when antigens are injected into the tissues of an animal or person. It is to be noted that the molecules which have the property of acting as antigens may be in solution as is the case with certain toxins, or they may be constituents of cells, *e.g.*, of bacteria. The anti-substances are classified according to their action, and five chief varieties are to be distinguished—namely, (1) *antitoxins*, (2) *precipitins*, (3) *agglutinins*, (4) *opsonins*, (5) *immune-bodies*—which are concerned in bactericidal action, hæmolysis, &c. We may now refer to some of the chief properties of these substances. Antitoxins are, of course, developed in response to the presence of certain bacterial toxins in the body, or of certain vegetable toxins, *e.g.*, ricin, abrin, &c., or of snake venoms and other animal poisons. So far as we know, the antitoxin has no other action than that of combining with the toxin—it is a neutraliser, it fills up the combining affinities of the toxin, so that the latter can no longer unite with the cells of the body and damage them, the combination of toxin and antitoxin acting as a neutral compound. Given favourable circumstances, the amount of antitoxin which may be developed in an animal is very remarkable, often amounting to many times the corresponding amount of the toxin injected. We shall later consider some of the conditions necessary for the satisfactory application of antitoxins as therapeutic agents.

Precipitins are the substances developed in response to the injection of soluble proteins which act as the antigens. The precipitin unites with the antigen just as an antitoxin unites with a toxin; but, in addition, a visible precipitate results from the union. Here again the anti-substance (precipitin) is specific or comparatively specific; it has its maximum effect on the serum used for injection, though it may have also slight action on the sera of closely allied animals. For example, if a rabbit is injected on several occasions with quantities of human blood serum, its serum comes to contain a precipitin for human serum: this precipitin gives the greatest precipitate with human serum, but it also gives minor precipitates with the serum of other members of primates, especially the anthropoid apes; this is due to the fact that some antigens are common to these animals and to man. With the serum of all other animals the anti-human precipitin gives no precipitate. The practical value of this reaction depends on the exceedingly small amount of human serum which suffices to give a precipitate. Thus, with a powerfully acting anti-human serum, the thousandth, or even the ten-thousandth, part of a cubic centimetre of human serum will give a visible reaction. Much more than this amount can be obtained from even a comparatively small blood-stain, and hence the precipitin test, as is well known, can be used for forensic purposes in the detection of human blood. Delicate as the test is, it is exceeded in delicacy by the deviation of complement reaction to be described below.

The next three classes of anti-substances—agglutinins, opsonins, and immune-bodies—are developed in response to the injection of bacteria, the antigens being constituent molecules of the substance of the bacteria. The agglutinins are now well known as the substances which produce clumping of the corresponding bacteria, a phenomenon which has its naked-eye expression in the "sedimentation" of the bacteria when they are uniformly disposed in a fluid as an emulsion. The physical nature of agglutination is not yet understood, and cannot now be discussed with profit: and it is doubtful whether agglutination *per se* has any directly harmful effect on the bacteria. We have no means of measuring the absolute amount of agglutinin in any case, but we may say that, judged by the amount of bacteria which a given amount of serum will agglutinate, or by the amount of dilution of the serum which will produce clumping, agglutinin is formed in relatively large amount and at a comparatively early period after the bacteria are present in the body. Thus it is easy, by injecting a particular bacterium in the dead condition into an animal, to obtain a serum which will produce agglutination in a dilution of a thousand or even more. In the case of typhoid infection in the human subject agglutinative properties may be detected by the end of the first week and even earlier, whilst agglutinins appear in the serum in the great majority of bacterial infections, and, in fact, supply the most useful means of diagnosis in the case of many of them. Whilst agglutinins themselves are not concerned in the destruction of bacteria, they nevertheless represent the products of a reaction on the part of the tissues of the body. Their absence, or their presence in small amount, may be due either to the infection being a slight one, or, on the other hand, to a very grave infection overwhelming the reactive powers of the body. Thus, when the attack of the disease is manifestly very severe, the defective formation of agglutinins has an unfavourable prognostic significance. In this respect the production of agglutinins corresponds with other reactive phenomena.

It would take a much longer time than I have at my disposal to discuss fully the subject of opsonins and their relation to diagnosis and prognosis. I shall only state shortly what I believe to be the chief facts with regard to these substances, so far as they concern the reactions of immunity. As Wright and Douglas showed in their first paper, if normal serum is mixed with leucocytes and staphylococci, and the mixture is incubated for half an hour at 37° C., marked phagocytosis of the organisms occurs: whereas if normal salt solution is substituted for the serum, or if the serum is previously heated for an hour at 55° C., there is practically no phagocytosis. This shows that the normal serum contains an opsonin, easily destroyed by heat, which acts on the cocci and makes them susceptible to phagocytosis by the leucocytes. This "normal opsonin," as we may call it, acts on a great many different organisms, as is shown by the fact that treating the normal serum with an emulsion of an organism will remove the opsonic action on other organisms. Experiments carried out by Dr. Martin and myself show that the "normal opsonin" belongs to the group of complements (*vide infra*). If, however, an animal is immunised by repeated injections of staphylococci, the opsonic action on the staphylococcus is increased, whilst it is not increased for other organisms: and if the serum of the immunised animal is heated for an hour at 55° C., it still possesses opsonic properties. The important fact, then, is that in the process of immunisation a thermostable opsonin has been developed, and numerous tests show that this opsonin is specific, that is, acts only on the staphylococcus: in other words, the injections of the staphylococcus have given rise to a specific anti-substance with opsonic action.

It will, of course, be evident from what I have said that the increased opsonic action of the unheated serum of the immunised animal will be due to the combined action of the normal (non-specific) opsonin and the specific thermostable immune-opsonin. Time does not permit, nor is it necessary, to discuss the exact nature of the co-operation of the two kinds of opsonins: the important practical result is that the increased opsonic action of the serum of the immunised animal is due to a specific anti-substance. This result is of great importance in connection with the theory of phagocytosis, as it shows that the increased phagocytosis developed by immunisation is due, not to some change in the leucocytes formerly spoken of as "education of these cells," but to the appearance of an anti-substance in the serum which acts on the corresponding bacterium and makes it more sensitive to phagocytosis. Immunity characterised by increased leucocytic activity, in other words, is due to the development of anti-substances which act as specific opsonins. Increased opsonic power of a serum, due to the development of specific opsonins, may thus be regarded as evidence of an immunity reaction against the corresponding bacterium. Bacteria are not only in many cases destroyed more rapidly within leucocytes than when they are free in the serum, but there is also evidence that the intracellular destruction protects more efficiently against toxins which are set free on the disintegration of the bacteria than when the destruction occurs outside of cells.

We come now to the fifth class of anti-substances, namely, immune-bodies. These were at first discovered in the case of the injection of formed elements such as bacteria, red corpuscles, and other cells from an alien species, but we now know that they are also developed by substances in solution, for example, in the serum. The immune-bodies ("amboceptors" of Ehrlich) do not of themselves produce any recognisable effect on combining with the corresponding antigens, so far as is known—in this respect resembling antitoxins—but they lead to the union of complement, and thus bactericidal action, hæmolysis, &c., may result, as the case may be. This complement ("alexine" or "cytase" of French authors) is present in normal serum; it is comparatively unstable, being destroyed at a temperature of 60° C.: it is not increased in the process of immunisation, and it is essential for bactericidal and hæmolytic action. The test usually employed for the detection of complement is a hæmolytic one, and it may be explained as follows:—If the red corpuscles of the ox are placed in the serum of the rabbit hæmolysis does not occur; complement is present but does not enter into union with the corpuscles: if, however, we inject a rabbit on several occasions with ox's corpuscles, the rabbit's serum comes to possess a marked hæmolytic action. This is due to the development of an immune-body, which enables the complement to combine with the corpuscles. If the serum of the immunised rabbit is heated at 60° C., the hæmolytic action disappears, because the necessary complement is destroyed; but it is restored at once if the serum of a normal rabbit is added—that is, if complement be supplied. The immune-body manifestly is not destroyed at the temperature mentioned, yet the heated immune-serum, when added to the corresponding corpuscles, makes them susceptible to the action of complement: in other words, sensitises them. Sensitised corpuscles thus supply us with a test for complement—whenever they are added to a fluid containing complement they will undergo lysis: when lysis does not occur we infer that complement is not present in the fluid.

DEVIATION OF COMPLEMENT.

We are now in a position to understand the application of the above facts to what is known as "the deviation of complement" test. We have seen that the injection of bacteria into an animal in suitable doses may lead to the development of marked bactericidal action, and that this is due to an immune-body which leads to the union of the active complement of the serum. Bactericidal action, however, does not always occur, as this depends ultimately on the sensitiveness of the bacterium to complement: nevertheless, even when there is no bactericidal action, the presence of an immune-body may be shown by the taking up of complement. We make a mixture of bacteria + anti-serum + complement, and place it in the incubator for an hour at 37° C.: we then add sensitised corpuscles, and these do not undergo lysis owing to the complement having been fixed or deviated by the bacteria. This phenomenon is found to occur in the case of a great many antigens and their anti-substances. Thus, to mention a striking example, if a small quantity of human serum is added to anti-human serum (the serum of a rabbit immunised against human serum), not only may a precipitate form but also complement is deviated, so that lysis of red corpuscles is interfered with. In experiments carried out by Dr. Martin and myself we found that this test was from ten to a hundred times more delicate than the precipitin test. In some cases even so small an amount as the millionth part of a cubic centimetre of human serum could be detected by it—that is, this minute amount of human serum when added to anti-human serum takes up an appreciable amount of complement, as is shown by the interference with lysis of sensitised corpuscles. The test can also be applied to the detection of albuminous substances in the urine, as has recently been done by Dr. Haswell Wilson, who has found that it can demonstrate the presence of a much smaller amount than can be done by any of the chemical methods.

The deviation of complement reaction has also been recently applied to the diagnosis of syphilis by Wassermann and others. Reasoning by analogy, Wassermann considered that possibly anti-substances might be present in the blood of syphilitics, which, along with the antigens contained in the spirochæte pallida, would deviate complement. As material for supplying the antigens he used a liver showing the lesions of congenital syphilis and containing many spirochæte, and from this he prepared a watery extract. He found that this extract, along with syphilitic serum, produced a distinct deviation or fixation of complement, and his results have been abundantly confirmed. It was, however, found that an extract of *normal* liver might take the place of the syphilitic extract as antigen—a fact which up till the present has received no satisfactory explanation—and also that solutions of glycocholate of soda, lecithin, and various lipoids might act in the same way along with the syphilitic serum. Whilst at present we are unable to explain the *rationale* of the reaction, there is no doubt that the deviation of complement test is of the greatest value in the diagnosis of syphilis.

SERUM-THERAPY.

Having now reviewed the various kinds of anti-substances, we may consider certain points in the serum treatment of disease. In such treatment we are essentially making use of anti-substances or neutralisers from the blood of highly immunised animals. These anti-substances, so far as their mode of action is concerned, are directed either against the particular toxin or against the vital activities of the bacterium producing the toxin—that is, they are either antitoxins or anti-bacterial substances. The antitoxins were discovered first, and the definite results obtained by experimental methods in the case of various toxins, supported by the wonderfully favourable effects of diphtheria antitoxin when applied in clinical cases, gave the hope that in antitoxins we had a form of remedy capable of general application. It was natural, though not justifiable, to suppose that antitoxins might be obtained for all bacterial products producing pathogenic effects. It is hardly necessary to say that antitoxins have as yet a comparatively limited application. The chief reasons for this are two in number. In the first place, it is essential for the successful treatment with antitoxin that no large amount of the toxin should have become fixed to the tissues of the body; if, on the other hand, this has already occurred, the toxin may proceed to exert its injurious action, even although large quantities of antitoxin are injected. Thus, in diphtheria where the diagnosis can be readily made at an early stage of the disease, marked success has attended the antitoxin treatment; in tetanus, on the other hand, the earliest indication of the presence of the disease is the occurrence of symptoms which are due to a considerable amount of toxin having already become fixed to the grey matter of the spinal cord. Tetanus antitoxin might, however, be used with advantage to a greater extent as a *preventive* measure in cases where, from the nature of the wound, there is probability of infection with the tetanus bacillus. In the second place, the general applicability of antitoxin treatment is curtailed by the fact that a large number of bacterial toxins appear not to have the power of giving rise to antitoxins. This would appear to be the case with the great majority of the so-called intracellular toxins or endotoxins—substances which are intimately bound up with the protoplasm of bacteria, and seem to have a somewhat similar action, in the case of different species, of producing fever, disturbances of metabolism, &c. In certain cases, for example, in the case of the bacillus of typhoid by A. Macfadyen, it has been claimed that antitoxins to intracellular toxins have been obtained: but these are exceptions to the general results, and it may be stated that most attempts have been attended with failure. Many of the infections in question—for example, typhoid fever—run a course of some duration, and recovery results in the majority of cases: the conditions would therefore be favourable for antitoxin treatment, if such were available. Thus, if a true typhoid antitoxin could be obtained in any quantity, the symptoms of the disease could be greatly lessened and its course shortened: unfortunately this is not the case, and recovery from the disease depends upon the destruction of the bacilli by the cells and fluids of the body.

In the case of anti-bacterial sera the conditions necessary for success are of a no less exacting nature, and are such as are not often fulfilled in clinical cases. It is easy to immunise an animal against many times the fatal dose of the living organism, and the serum of the immunised animal may have considerable preventive power when injected into another animal. It is, however, quite another matter to treat successfully an attack of the disease, produced by the particular organism, already in progress in the human subject. The conditions necessary to a successful result are well worthy of consideration. It has been stated above that at least three types of anti-substances may be produced by the injection of a given bacterium, and that two of these—viz., immune-bodies and specific opsonins—may aid in the destruction of the bacteria. The immune-bodies contained in the anti-serum are concerned in bactericidal action, requiring, however, the co-operation of the complement normally present. Now complement, as has been said, is unstable, and unless extraordinary precautions be taken, rapidly disappears from the serum: the ordinary anti-sera in the market are devoid of complement, and accordingly complement must be obtained from the patient treated. Now it is to be noted:—(*a*) Not every complement suits a given immune-body—that is, is taken up and brought into combination with the bacterium by the medium of the immune-body: human complement may thus not be taken up. (*b*) Even if the complement is taken up by means of the immune-body, bactericidal action may not result, because the bacterium is not sufficiently sensitive to the action of the complement. It is easy to produce an antistaphylococcus immune-body which will lead to the taking up of considerable quantities of human complement; staphylococci are, however, not killed thereby; human complement is not sufficiently toxic to them. (*c*) In order that the greatest bactericidal effect may be obtained, it is necessary that immune-body and complement be present in a certain proportion, and sometimes, if immune-body is present in excess, no bactericidal action takes place. These conditions make the obtaining of a serum possessed of bactericidal powers in clinical application a matter of considerable difficulty. Even when the bactericidal action is present, it may be prevented from becoming effective by various circumstances, the chief of which is the position of the bacteria in the tissues. These often flourish in recesses of the tissues, inaccessible to immune-body and complement in sufficient quantity, or they may be present in such large masses that the bactericidal substances will be used up by those at the periphery, whilst those in the centre will escape. It may appear that I have insisted too much on these points, but it is important that those engaged in clinical work should apprehend the difficulties in obtaining efficient bactericidal action by means of an anti-serum. In fact, I believe that any favourable action produced by an anti-bacterial serum in clinical practice is much more likely to be produced by the specific opsonins which it contains, than by the immune-bodies. Those opsonins, as has already been explained, may act on the organisms and make them susceptible to phagocytosis even in the absence of complement. The development of specific opsonins, moreover, is a common result of the introduction of organisms into the tissues, and one which is obtained both when bactericidal action is increased, as in the case of typhoid, and also in many cases where the serum does not possess bactericidal properties —*e.g.*, in staphylococcus and streptococcus infections, in plague, &c. That the introduction of opsonic substances in an anti-serum may often have a favourable effect is, in my opinion, scarcely a matter for doubt. While it is difficult to obtain the conditions necessary for the destruction of bacteria infecting the human subject, the various anti-bacterial sera may, however, give assistance, and that, even if in small degree, may be sufficient to turn the balance in favour of recovery.

A few words may be said in reference to the serum treatment of epidemic cerebro-spinal meningitis, a disease which is peculiar in this respect, that the serum may be injected directly into the chief site of multiplication of the organisms, namely, into the spinal canal. Various antisera to the meningococcus have been prepared, and favourable results have been reported by several observers. The question naturally arises as to whether such sera act by inducing bactericidal action or by promoting phagocytosis. With regard to the former possibility, it is to be noted that complement, which is, of course, necessary, is absent from commercial antisera, whilst it is present in very small amount in the exudate in the meninges, if, indeed, it is present at all. It is difficult to see how bactericidal action is to be brought about. Then, again, with regard to opsonic action, there does not usually appear to be deficiency of phagocytosis, and even in fatal cases nearly all the organisms may be contained within leucocytes. It accordingly appears difficult to give a satisfactory explanation of the action of such antisera, though we do not thereby question the validity of the results. Drs. M'Kenzie and Martin, of Glasgow, have introduced a method of serum treatment which has not only been attended so far with strikingly successful results, but is also scientifically sound in principle. It consists, as many of you may be aware, in separating the blood-serum of a patient suffering from meningitis, and injecting it into the spinal canal of the same or another meningitis patient. The properties of such serum have been carefully studied by these observers, and they have found that in many cases it has a much greater bactericidal action that a normal serum, this increased activity being due to an immune body for the meningococcus specifically developed in the course of the infection. Accordingly, when such a serum is injected, it contains all the elements necessary for killing the meningococcus: it is, in fact, an actively bactericidal fluid. The method is excellent in principle, as the human serum injected is, of course, quite innocuous to the tissues. It is extremely desirable that the method should be tried on a larger number of cases than has yet been done, and the results compared with those obtained by means of various antisera in the market. Certainly the series of cases already published by Drs. M'Kenzie and Martin, and all of them carefully worked out by scientific methods, afford the hope of a considerable measure of success by this method of treatment.

TREATMENT OF INFECTIONS BY VACCINES.

Up till a few years ago it was generally accepted that the methods of active immunity—that is, the injection of dead cultures, &c., as "vaccines," toxins, &c.—could only be used for purposes of prevention, not as curative measures, during the progress of an infection, and that any hope of effective treatment depended on the use of antisera. The only exception to this general statement is in the case of tuberculosis, in which disease successful treatment had been apparently carried out in many cases by the careful administration of tuberculin in small doses. By the work of Sir Almroth Wright, however, wide possibilities have been opened up as to the treatment of infections by means of vaccines in the form of certain doses of dead cultures of the invading organism. The *rationale* of such treatment depends upon the fact that in many infections the bacteria are comparatively localised, and, although certain products which cause fever and disturbances of metabolism are absorbed from time to time, the antigens do not enter the circulation in sufficient amount to produce a general immunity reaction resulting in the formation of anti-substances. If, in these circumstances, however, a certain amount of the bacteria concerned be injected into the healthy tissues in the dead condition, the antigens which they contain are rapidly absorbed, and give rise to corresponding anti-substances, specific opsonins amongst others. These will then be carried to the sites of bacterial growth in the tissues, and may greatly aid the defensive processes already in action; a favourable result may thus be brought about.

It will be evident from what has been stated above that the object aimed at is to raise the anti-substance content of the serum as high as possible, and in estimating this the opsonic index is made use of. Wright holds that without a control of this kind, actual harm may be done by the injection of the vaccine: if, for example, an injection of considerable amount be made during a negative phase, the reactive machinery may be impaired instead of stimulated. According to this view, then, the existence of a lesion produced by a given bacterium does not exclude the possibility of producing a general reaction, comparable, for example, with that produced in a healthy subject, and this may be effected by carefully regulated doses of the corresponding vaccine. It may appear superfluous, though I know from personal experience that it is not unnecessary, to state that such a vaccine is not a "serum"—it is simply a dead culture of a bacterium.

Time does not permit me to discuss the merits of this system of treatment as a whole, nor do I think that we are yet in a position to estimate fully its possibilities, but I may say that the facts already accumulated show that it is in all probability a method of high value. In applying it, an essential requirement of course is to know the nature of the bacterium present in the particular case, and it is advisable, as Wright recommends, to obtain a culture from the lesions, and use the organism thus cultivated for the preparation of the vaccine. There are, for example, a large number of varieties of streptococci, and the anti-substances (including opsonins) developed against one of these will have the maximum effect on that variety, whilst on others the action may be much less. Wright, in introducing this system of treating a disease already existing by means of vaccines, limited its application to comparatively localised infections. I may quote his words:[1]—"I am very far from suggesting the incorporation of additional bacterial toxins into a patient already the subject of a septicæmic disease or a serious bacterial intoxication. Such an inoculation could, I take it, serve no good purpose." In recent times the treatment by vaccines has, however, been extended to cases approaching a septicæmia in type—ulcerative endocarditis and the like—and favourable results have been published in these also. Either such results represent fortunate coincidences or there is something underlying the method which is not yet understood. Personally I do not consider that the injections of vaccines in such conditions can have any favourable effect.

Atreptic Immunity.

Before concluding this address, I may add a few words in explanation of this condition. The term was applied by

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[1] Wright, *British Medical Journal*, 1903, i, 1072.

Ehrlich to explain certain phenomena which he observed in the transmission of cancer to animals. It is now pretty well known that a tumour may be successfully transplanted in animals of the same species in a varying percentage of cases, whilst transplantation to other species fails. Ehrlich observed that when a mouse tumour was transplanted to the rat it might go on growing for a certain number of days and then cease to grow. If at this stage it were re-transplanted to the mouse, growth might be resumed, whereas if it were transplanted to another rat, no growth took place. The failure to grow in the rat is thus apparently due, not to a power possessed by the tissues of that animal of destroying the tumour cells, but to the absence in its tissues of some unknown substance necessary for their growth. When the tumour is first transplanted, sufficient of the unknown substance is carried over with it to enable the cells to grow for a limited time. A similar explanation probably holds in some cases of natural immunity to infective organisms. Some bacteria, for example, associated with disease in the human subject have become so specialised in their conditions of growth that they will grow only on specially prepared media. The influenza bacillus grows on blood agar, but it does not grow on ordinary agar: the failure to grow on the latter is due to the absence of a substance necessary for its growth. That the *natural* immunity possessed by various animals is of the nature of atreptic immunity can hardly be doubted; the protozoa, in particular, have become specially restricted in their condition of growth, and their failure to infect certain animals may be explained in this way. The spirochæte pallida, for example, is not only harmless for many animals, but it is apparently harmless when introduced into certain tissues even of susceptible animals. Subcutaneous inoculation with the virus of syphilis in the susceptible anthropoid apes is usually without result, whilst infection follows when the epidermis is infected. Numerous similar examples might be given. It is, however, impossible to say to what extent natural non-susceptibility is due to the absence of the substances necessary for the growth of the infecting organism. And it is further to be noted that it is only natural immunity which may thus be explained—we have no evidence whatever that acquired immunity in human disease is ever due to the using up of these special substances—that is, is of the nature of an exhaustion immunity.

[A demonstration of the various serum reactions was given in illustration of the address.]

CEREBRAL PHYSIOLOGY AND THE EDUCATION OF ABNORMAL CHILDREN.

By JAMES KERR LOVE, M.D.,
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(*Concluded from* p. 104.)

The condition of the blind-deaf child would appear at first sight to be quite hopeless, and up till recent years was regarded as such. But he has one great gateway or avenue left—the sense of touch. Now, the information which reaches the blind-deaf through this channel is necessarily given very slowly: but, as it is given by means of a verbal language, it is capable of being expressed accurately, and it confers on the blind-deaf the power of responding in equally accurate terms.

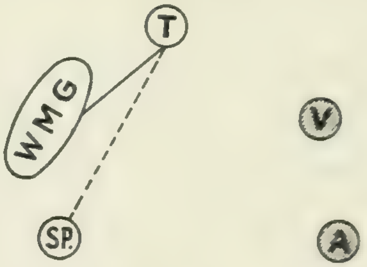

Fig. 7.

Language centres in the blind deaf. The only active associated fibres are those between T and the group W.M.G., unless speech be taught, in which case Sp. is brought into the circuit.

Intellectual development is, therefore, possible in theory to any extent by this means. In practice, such development is limited by the amount of time and patience required by both teacher and scholar to get good results.

Conspicuous cases of success have occurred, and chief amongst those are Laura Bridgman and Helen Keller. When I asked Miss Keller what effect she thought the acquisition of speech had on her, she replied, after a little thought, "It made me think three times more quickly." Now, before she learnt speech, Helen made remarkable progress. Every presentation reaching her through her sense of touch was arranged and packed carefully away for reproduction just when needed. Similarly, every successful finger-spelling movement could be repeated with a readiness unusual in children. In other words, she had a splendid memory. What reached her she retained. What she did once she could repeat easily. But in her brain, till the age of ten years, only two centres were engaged in the regular work of education. The centres for vision and hearing were out of the circuit, the centre for touch alone was used for ingoing impressions (language appreciating centre), and the centres for movements of the arm and hand, as used in spelling the American or single-handed manual alphabet, was used by her in response as an outgoing centre (language producing centre). But when, on Helen making the demand, "I must speak," the old centre for speech, rendered apt for the expression of exact thought and abstract idea by thousands of years of hereditary use, was called in, she felt she had entered a new world, and exclaimed, "My soul, conscious of new strength, came out of bondage, and was reaching through these broken syllables to all knowledge and faith." She forthwith thought more rapidly and accurately.

In the blind-deaf who do not speak, internal language must be a series of revived touch impressions or of revived motor processes, the movements being those used in the spelling of the manual alphabet.

I have recently made further enquiry at Miss Keller with regard to her process of silent thought. In reply, she states that she often feels herself mentally talking with her lips; she also feels herself to be spelling with her fingers. When she thinks of something she has read she says she conceives the words in Braille points.

In her recently published book, *The World I Live in*,[1] she states, "I cannot represent more clearly than anyone else the gradual and subtle changes from first impressions to abstract ideas, but I know that my physical ideas—that is, ideas derived from material objects—appear to me first in ideas similar to these of touch. Instantly they pass into intellectual meanings. Afterwards the meaning finds expression in what is called inner speech. When I was a child my inner speech was inner spelling. Although I am now frequently caught spelling to myself on my fingers, yet I talk to myself, too, with my lips, and it is true that when I first learnt to speak my mind discarded the finger symbols and began to articulate. However, when I try to recall what someone has said to me, I am conscious of a hand spelling into mine."

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[1] Helen Keller, *The World I Live in*, 1908, p. 146.

Now, Miss Keller learnt speech at ten years, before which she thought in spelling (individual letters), after which she thought in articulation processes (words).

If the modern view that the language centres are not areas rigidly mapped off from one another, but areas within which each special function is most active, a physiological examination of Miss Keller's remarkable mental power is here suggested. She declares that it is through her sense of touch that so much which usually reaches us through eye and ear comes to her brain, and her account of what comes to her by touch is from the physiological side a valuable and original series of observations. May not the cell-growth of the touch centre and its connections have extended during her early years at the expense of the contiguous grey matter which was inactive, and may not the grey matter of the touch area of the brain surface in her case occupy a relatively greater area than it does in normal people? This must always remain only a theory, but histologically there is no known difference in the grey matter forming the different centres behind the fissure of Rolando. Further, such a theory is in no way incompatible with what was stated at the beginning of this paper, viz., that in normal children, where the usual stimuli are in operation, development of function proceeds within rigidly fixed lines governed by heredity and anatomical connection.

An interesting paper by Professor Pawlow,[1] on what he calls "Conditioned Reflexes," may be referred to. The presence of food in the mouth, an "unconditioned stimulus," produces a flow of saliva. But usually the sight or smell of food produces the same result. Such is a "conditioned stimulus." Pawlow found that if in a dog such a conditioned stimulus be repeated often—for some days or weeks—without the particular food being actually given, it loses its power to excite the secretion of saliva by presentation to the nose or eye.

He next substituted a new conditioned stimulus for that usually supplied through the nose and eye. When food was placed in the dog's mouth, a given note on the piano was struck, and it was found that after thirty or forty repetitions of this, the striking of the piano note alone produced by itself the flow of saliva. Further, he found that the varying of this note by even a quarter of a semitone was enough to interfere with the salivary response.

Now, such physiological alterations in the methods of response to stimuli cannot take place without corresponding changes in the brain substance, viz., new cell cohesions and developments.

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[1] Huxley Lecture, *Lancet*, 6th October, 1906, p. 911.

No wonder the sense of touch in the blind becomes developed and apparently more acute to a remarkable degree, and as in the blind the alteration in the circuit is permanent and not as in the dog (see above experiment), temporary, it seems fair to assume that the touch area of the cortex becomes permanently extended at the expense of contiguous unused areas. Thus, Miss Keller's marvellous use of her sense of of touch finds a physiological explanation, and the same argument applies to her scarcely less marvellous use of the sense of smell.

Alongside of Helen Keller's case may be put that of Laura Bridgman. The latter is not only of great value as a physiological study, but also because it made success with the former possible. The chief initial difference between the two, looking at them as subjects for the operation of the language centres, is the almost total absence of the sense of smell from Laura's case. Helen's use of the sense of smell undoubtedly raises it to the position of a true language centre, a position it does not occupy in the normal child. In connection with the theory put forward above with regard to the acuteness of Helen Keller's sense of smell and touch, the description of the brain as found at Laura Bridgman's autopsy is valuable. "The examination of the brain showed that those portions which from youth up could not be brought into activity in the ordinary way through external impressions, viz., all the cerebral nerves, were small; the gustatory nerve, the auditory nerve, and a nerve that moves the eyeballs were stunted, and this was specially true of the tract of the optic nerves. The cerebral hemispheres appeared somewhat flattened behind, and the occipital lobe, in fact, smaller on the right than on the left, and the right cuneus much less developed than the left. This difference in the region belonging to the visual centres is intelligible when we consider that Miss Bridgman from her second year was completely blind with the left eye, whereas with the right she retained some sensation of light until her eighth year, enough, at anyrate, to allow the development of the centres of the left side to go on."

Assuming these details of the autopsy of the brain to be correct, we have proof that the loss of function of, or the absence of, the end organs in the eye or ear is accompanied by a shrivelling of the tracts leading to the brain, and of the parts of the brain connected therewith. The writer has shown that in deaf-mutes the delay in development of the language centres is associated with a less size of the head than holds in the normal child.

Is it not reasonable to suppose that the greater use of the senses of smell and touch which took place in Helen Keller's case has been accompanied by a corresponding increase of the cortical areas belonging to those centres?

Looking now to the operations of the language centres proper, the chief difference between Helen and Laura is the possession of speech by the former. There is no doubt Laura Bridgman could have been taught to speak, and Dr. Howe, her teacher, ultimately regretted that he had not taught her speech. But the acquisition of speech would never have made Laura Bridgman into an Helen Keller. Long before the latter had learnt speech she showed a mentality which Laura Bridgman never reached. The interesting thing about Laura is not that she was never taught speech, but that without teaching she had a vocabulary of fifty or sixty words, or at least of articulation movements which passed for words, and which she used with accuracy chiefly for the designation of persons of her acquaintance. These words were, according to Dr. Lieber, all monosyllabic, and in her use of them she resembled children and uncivilised tribes. A poor vocabulary, one may say, but a very eloquent testimony to the heredity of the tendency to speak. Laura never spoke sentences; when she used language in her sleep, it was the language of the manual alphabet.

Dr. Lieber says,[1] "Laura was positively interrupted in the formation of her imperfect and elementary phonetic language in order to make her a being of intercourse in our society—in order to attach her as a living member to the community of civilisation. This could not have been done had she been allowed freely to indulge in the harsh and grating sounds which excited souls utter forth through a throat untaught and unbred, so to say, by the harmony of developed civilisation in which we move."

Like Laura Bridgman, Helen showed the hereditary tendency to speak when she said, "I must speak." What she aspired to was hardly considered possible.

Side by side with Dr. Howe's great work (the teaching of language to the blind-deaf) must be put Helen Keller's (the acquisition of speech by the blind-deaf)—the greatest individual achievement in the whole history of oralism, or indeed of education.

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[1] Maud and Florence Howe, *Laura Bridgman*, 1904, p. 244.

But it was well for Helen that she was not born in 1829, as Laura Bridgman was. For fifty years after that the teaching of the deaf in America was manual, as introduced by the elder Gallaudet, and Helen Keller's cry, "I must speak," would, in spite of her own great genius, have been vain.

Although an attempt has been made here to show the operation of the language centres in these two remarkable cases, there are two points which must be borne in mind. Both heard and saw for the first two years of life, and although neither in later years could recollect colour and sound impressions, it does not follow that such impressions had no influence in their later thought processes. It is almost certain that such an influence continued.

On the other hand, no attempt is made here to account for the mental result in Laura Bridgman and Helen Keller as the product of the language centre alone. It seems to the writer even more difficult to do so (especially in the case of Helen Keller) without postulating the existence of a soul than it is in the case of the normal individual.

A short study of aphasia, with the related conditions of word-deafness and word-blindness, is useful in two ways. It helps us to understand the mechanism of speech, and it throws light on the management of a small class of extremely difficult, but also extremely important, cases amongst backward children. It will also help the understanding of the difficulties of the deaf and blind.

The cortical centres concerned in the reception and production of language are the visual and the auditory on the one hand, and the centre for speech and writing on the other.

With the writing centre may, as we have seen, be included the manual and gesture language centres, because writing is only putting down on paper by one set of conventional signs what the hands write in the air by another set, whilst in all three the same set of muscles—those of the hands and arms—are those chiefly engaged. Now, in children, education may be hindered by damage to the terminal organs, the ear, and the eye, or to the auditory and optic nerves leading from these terminal organs to the corresponding centres in the brain at *x* in Fig. 4. As a matter of fact, such is the usual location of the disease causing deafness in the deaf and dumb and blindness in blind children. In both cases the corresponding cortical centres, A or V, is permanently out of the circuit, and a less habitual route has to be chosen to complete the circuit. In the blind, A-Sp., the usual route for the ingoing of accurately expressed ideas, is still open, the education of the child proceeds apace, and touch is made to take the place of sight. But in the deaf, A-Sp. is unused, and Sp. as a motor centre with storing power is lost to the brain, unless where speech is developed through some other channel than hearing. It is true that by a verbal language, such as writing or the manual alphabet, accurately expressed ideas may be conveyed, the ingoing being by V and the outgoing by W to the hand. But Sp. remains unused, so that the finger-taught deaf child lost two storing centres, Sp. and A, whilst the orally-taught deaf has lost only A (see Fig 6, *a* and *b*).

Within the brain education may theoretically be hindered by damage to any of the four centres, Sp., A, V, or the group W.M.G., or to the fibres associating these centres. As a matter of clinical experience, damage takes place in both situations, but in children such damage is limited in practice to the centres, the associating tracts being seldom affected in those who are capable of attending school at all.

In *true motor aphasia* of adults the centre Sp. is damaged. The damage is commonly due to embolism of, or bleeding from, a vessel leading to the lobe or convolution of Broca, in which the centre for speech is placed.

Although a speech centre exists on both sides of the brain, the working centre has come by heredity to be placed, in right-handed people, on the left side of the brain, and in left-handed people on the right side.

In children this speech centre is occasionally congenitally imperfect, and we have those cases of dumbness with perfect hearing, and otherwise normal intelligence, which come to the schools for the deaf and dumb for admission (congenital aphasia).

When aphasia occurs in an adult it occurs suddenly: all memories of words which have been spoken by the patient are destroyed or much impaired, and, unless he be one of those who has been able to carry on his silent thought without the medium of internal speech, his mental processes are also greatly impaired.

Word-deafness may be also either congenital or acquired. Hearing for musical sounds, or even for the letters which compose words, may be and is usually perfect, but the auditory memories for spoken words are destroyed. Internal speech, if the patient has been a strong "auditive," is interfered with, for the patient can no longer carry out that mental audition which formed part of his processes of silent thought. If he has been a strong "visual," accustomed to take direct from the page without the intervention of internal speech, he can still read, the mental disturbance is less, and the disturbance to motor speech is but slight.

In *word-blindness* the process of memorising written or printed words is interfered with. In other respects sight may be, and usually is, perfect, and, apart from the difficulty of learning to read, the child in a congenital case may be a bright pupil.

There can be no doubt that, whilst these cases of congenital word-blindness are not common, they occur amongst school children, and account for some of the cases of almost inscrutable backwardness in language which occur in otherwise smart children.

The following case, quoted from Dr. Hinshelwood, illustrates the difficulty in a case of congenital word-blindness:—

"A boy, aged 11 years, was at school for four and a half years, but was finally sent away because he could not be taught to read. His father informed me that he was a considerable time at school before the defect was noted, as he had such an excellent memory that he learned his lessons by heart: in fact, his first little reading-book he knew by heart, so that whenever it came to his turn he could from memory repeat his lesson, although he could not read the words. His father also informed me that in every respect, unless in his inability to learn to read, the boy seemed quite as intelligent as any of his brothers and sisters. His auditory memory was excellent, and better than that of any of the other members of the family. When a passage was repeated to him aloud he could commit it to memory very rapidly.

"When I first saw the boy and his father at the Glasgow Eye Infirmary I asked them to call on me at my house, and I wrote down the address on an envelope. A few days thereafter the father could not find the envelope, but the boy at once repeated the address correctly, having remembered it from hearing me state it once.

"I examined the boy first on 4th March, 1900, when he seemed a smart and intelligent lad for his years. He knew the alphabet by heart, repeating it rapidly and correctly. He could recognise by sight, however, only a very few letters, and those not with any degree of certainty. He could spell correctly most simple words of one syllable, such as 'cat,' 'dog,' 'man,' 'boy,' &c., but he could not recognise by sight the simplest and commonest words, such as 'the,' 'of,' 'in,' &c. He had no difficulty in recognising all other visual objects, such as faces, places, and pictures. On each page of the little primer in which I tested him there was a picture of some object which was followed by some simple letterpress about it. He at once recognised each picture, *e.g.*, a cat. I would then ask him to spell the word, which he nearly always did quite correctly. On asking him to pick out the word 'cat' on the page he was unable to do it. I repeated this experiment on page after page of the little primer. On testing him with figures I found that he could repeat from memory fluently and correctly numbers up to 100. He could also perform mentally simple sums of addition. He could not, however, recognise all the figures by sight, but he knew them better than the letters, and recognised a greater number of them.

"Since 4th March I have seen the boy every week: I last saw him on 22nd April. I asked the father to keep him constantly practising at his alphabet, and at the figures up to 50. By dint of constant and persevering practice during these seven weeks he is now able to recognise many letters of the alphabet, but he has not mastered them all. Still, the result of the seven weeks' work gives us the hope that by perseverance he will gradually acquire the power of recognising the letters by sight. Whether he will ever be able to acquire the visual memory of words, so as to read by sight, is, however, very doubtful. The task of acquiring the visual memory of words is immensely greater than that of acquiring the visual memory of letters, of which there are but fifty-two in the English alphabet, including capital and small letters. But if he acquires the visual memory of the letters he will be able to read slowly by spelling out aloud each word letter by letter, and thus appealing to his auditory memory, which is excellent. His progress with the figures was much more rapid. He can now recognise them all up to 50. His father has always observed that he did not experience the same difficulty with figures as with letters. As his father expressed it, 'they came more readily to him.'"

We now come to a group of children, the mentally deficient, in which the abnormal conditions which obtain in the brain are essentially different from anything we have yet seen. In all the cases yet considered, an end organ, the ear or the eye, or both, have been damaged, or a language centre, that for sight or hearing, or both, are either congenitally or post-natally diseased. The effect of these changes is to disturb the processes of thought, but the effect is not serious or profound where the centre for speech is not involved. Except, therefore, in the deaf, the problem before the educator is not a difficult one, for it is easy to educate the speech centre by a less used route where hearing is not destroyed.

But in the mentally deficient it is in marked contrast to all this. The language centres are either perfect or but slightly deficient. The eye affection, if one exist, is usually a refraction error, which may be corrected by lenses. Hearing is usually perfect. Speech may be perfect, but if it be absent or very deficient, it is not because the speech centre is diseased, but because the child has no ideas to express. He is probably the subject of a lesion of the frontal lobes of the brain, where the higher psychical centres are placed. In the blind, in the deaf, and in the aphasic these higher psychical centres are perfect, and it is merely a question of taking trouble along the right lines, on the part of the teacher, in order to fit the pupil for the work of life. With the mentally deficient, except in the slightest cases, taking trouble along any line or lines is repaid by but poor results, and the child never becomes anything but a pitiable dependant on the efforts of others.

Throughout this paper hints with regard to the education of abnormal children have necessarily been dropped, but general principles on which their education should be conducted may now be drawn:—

1. It is useless hammering along a ruined tract or along a sound tract towards a ruined centre in the hope of imparting knowledge to a really deaf and blind child. It is better to use a circuitous though less used route. To ignore this principle is like pulling a bell with the wire broken, or knocking at the door of a tenantless house. In the *very* deaf and the *very* blind, therefore, slight remains of sight and hearing are useless and should be ignored.

2. Where the remains of sight and hearing are considerable —where in the deaf they serve for the discovery of vowels, consonants, and words; in the blind, for what under favourable conditions of light, &c., is written on a book or a blackboard—these should be used to the utmost. This principle provides for the oro-acoustic education of the semi-deaf and for the education of the semi-blind in smaller classes by the ordinary educational means.

3. When a circuitous route is necessary, education should be directed so that Broca's centre, the hereditary centre for the memory of spoken words, is used. It is not contended that accurate or abstract thinking is impossible if this centre be ignored; but if it be ignored, a highly specialised brain centre is left out, and the mechanism of thought has to be conducted without one of its most valuable resources. Now,

inasmuch as blindness leaves the tract A-Sp. intact, the lines on which the education of the blind must proceed are simple; but educators of the deaf differ as to whether, seeing A is destroyed, it is worth while reaching Sp. by a circuitous route. Thus, from the physiological side there is raised the old war of methods—oralism versus the manual alphabet language. The oralists try to reach Sp., and to reach it through V: the manualists ignore Sp., and establish a new verbal language centre at the group W.M.G. (Fig. 3). Now, in this controversy, physiology takes the side of the oralist. Where V is good, or, in other words, where the child's sight is good, and where the child is not mentally deficient, Sp. can be reached, and in doing so not only is an additional part of the brain used, but this part is the hereditary centre for the memorising of words. Thought in the orally taught deaf should, according to physiology, be more accurate and more rapid. In the blind-deaf, progress along any line is extremely slow, but physiology again points to the great advantage of calling in the regular exercise of the centre for motor speech, and Helen Keller's experience, as we have seen, agrees with the teaching of physiology.

4. In congenital word-deafness and congenital word-blindness our experience is as yet very limited. Many of these cases are never discovered, and are passed off as stupid children, the real cause of the dulness never having been discovered. But when a boy is clever with his hands and good in his games, where the difficulty is chiefly with his acquisition of language, word-deafness and word-blindness should be sought for. Dr. Hinshelwood finds that progress is made in time by the word-blind by repeated short reading lessons, and thinks that this is due to the right side of the brain gradually taking up the duty usually performed by the left visual centre. But although education in reading may be slow, general intelligence may proceed apace, for the auditory speech path is open.

5. In the teaching of the aphasic child who is not mentally deficient, Broca's convolution on the right side, unless the defect be bilateral, may be made to take up the work of the hereditary speech centre of the left side. Where failure shows that the defect is probably bilateral, education may proceed by the help of writing and the manual alphabet.

6. Mentally deficient children offer a different problem to the educator. These children are found not only in the ordinary elementary schools, but in the schools for the deaf and in those for the blind. The great need of the moment

is to recognise their limitations. The deaf who are also mentally deficient cannot be taught orally, and should reside permanently in institutions, even during their adult life. The same provision should be made for the blind who are mentally deficient. The mentally deficient who both hear and see should, if they make slow progress—progress so slow that it offers no prospect of their ever becoming self-supporting—also be provided for permanently in asylums. In the slighter cases, however, special education in smaller classes enables the children to be placed later in their school career in the ordinary classes of the elementary schools.

The writer's idea in this paper is that, having due regard to the physiological indications present, the teacher should be left as free as possible in selecting the method and in ordering the education of the abnormal child. Even at the risk of appearing to restrict the liberty of the teacher, the writer would lay down some other physiological indications with regard to the education of the orally taught deaf—

(*a*) As signs are used very extensively in the early teaching of the hearing child—during his first and second years of life—there is no physiological reason for suppressing them at the beginning of the school education of the deaf child. They should be used just as they are with hearing children, and excluded, as in the case of the latter, as soon as the more accurate equivalent has been learnt. They are like a finger supporting a child during its first attempts at walking, or like a crutch used during the recovery of the function of a broken limb, or, as the writer has elsewhere spoken of them, they are like the scaffolding necessary during the erection of a building. The finger, the crutch, and the scaffolding must alike go, never again to be used, except in times of danger or great difficulty.

(*b*) During the early years of school life the acquisition of articulate speech should be the chief business of the deaf child. As soon as may be, a vocabulary of common words should be so thoroughly learnt that its use in speech becomes automatic. This means slow intellectual progress during the first two or three years of the deaf child's school life. But it means better intelligence and better language in the end if the school course can be made long enough. Freed from the necessity of giving separate attention to the mechanism of his speech, the child will be able to give his undivided attention to the subject of his thought. Clearly the school period of a deaf child's life cannot be fixed in number of years but by a standard of attainment. In this connection, a distinction must be drawn between the semi-deaf and the semi-mute child on the one hand, and the toto-congenitally deaf child on the other. The latter, when he enters school, has thought in visual symbols or counters for so many years that it is certain that these will always bulk largely in his thought processes. Whether it is worth educating him orally will depend on the length of time the school course is to last and the rate at which he progresses. But the semi-deaf are, like the hearing, largely auditives, and both they and the semi-mute have a vocabulary which is automatic, and which it should be the first concern of the teacher to preserve. These, therefore, the semi-deaf and the semi-mute, should under all circumstances be taught orally.

(*c*) In the education of the deaf, drawing should follow speech and precede writing. This is the order which has been followed in the history of the human race, it is the order which is naturally followed by the hearing child, and it is the order which will best suit the mental development of the deaf child. The picture-writing of the earlier races, and the early efforts of the young child to imitate, by drawing the things that he sees, are generically the same. The use of conventional written symbols for those other conventional symbols which we call words came later in the history of the race, comes later in the natural history of hearing children, most of whom draw before they go to school, and should come later in the history of the deaf child.

(*d*) Until speech has become automatic no finger-spelling should be known to a deaf child. A combined method, where the combination is that of finger-spelling and speech, is, from the physiological standpoint, to be condemned. This means the banishment of the manual alphabet from the schoolroom of the orally taught for the first years of school life. If the visual and motor speech centres are to be developed for the purposes of speech and lip-reading, the child must not be distracted by the attempt to acquire another set of conventional motor signs like the manual alphabet. In the later years of school life, physiology would not condemn the practice of the manual alphabet by the child whose speech had already become automatic, but in practice, and for reasons quite apart from physiology, it is undesirable to introduce manual spelling into the oral schoolroom at all.

(*e*) The difficulty of procuring automatic speech in the deaf-born, while necessarily limiting the use of speech by these children, does not mean that it is not worth while teaching them speech. As a means of communication with others speech has an advantage over all other forms of language, which makes its acquisition by all classes of the deaf desirable. In *The Study of the Deaf Child* the writer has taken up this subject at some length, and need not further refer to it here. But the difficulty of procuring automatic speech in the deaf-born points to the great advantage of commencing speech training at a much earlier age than is now the rule, namely, six or seven years. By commencing speech training at two or three years, before the child has become a confirmed "visual," the ultimate value of speech in the processes of thought should be greatly enhanced.

CURRENT TOPICS.

WESTERN INFIRMARY APPOINTMENTS.—Mr. Wm. MacLennan, M.B., C.M., has been appointed one of the Visiting Physicians to the Infirmary in room of the late Dr. Lindsay Steven. Mr. MacLennan has taken charge of the late Sir Thomas M'Call Anderson's wards since the death of the latter, and Mr. R. Barclay Ness, M.A., M.B., C.M., has been appointed to take charge of these wards pending the proposed transference of the Chair of Clinical Medicine to the Royal Infirmary.

Dr. W. G. Dun has resigned his post of Assistant Physician to the Infirmary.

GLASGOW EYE INFIRMARY APPOINTMENTS.—Mr. J. Wishart Kerr, M.B., C.M., and Mr. J. King Patrick, M.B., Ch.B., have been appointed Anæsthetists to the Infirmary.

APPOINTMENT FOR A ST. MUNGO'S COLLEGE PROFESSOR.—Professor Hugh Galt, M.B., C.M., D.P.H. (Camb.), has been appointed Pathologist to the Stephen Ralli Memorial Laboratory at the Sussex County Hospital, Brighton. Professor Galt has been a member of the teaching staff of St. Mungo's College since 1898, and has for some time been Dean of the Medical Faculty.

PROMOTIONS IN GLASGOW R.A.M.C. (T.F.)—The following promotions have been recently gazetted:—

Mounted Brigade Field Ambulance—Major R. T. Halliday to be Lieut.-Colonel; Captain H. W. Thomson to be Major.

No. 1 Lowland Field Ambulance—Captain G. H. Edington and Captain A. Young to be Majors.

No. 2 Lowland Field Ambulance—Captain P. F. Shaw and Captain J. M'Kie to be Majors.

CANCER OF THE BREAST.—For a very long time, indeed, there have been few subjects which have excited so much interest as that of cancer; and in recent years there has been a vast expenditure of labour in the attempt to solve the problem of the nature of this disease. While laboratory workers have been earnestly engaged, clinicians have not been behind in their interest in the subject, and, as might have been expected from its frequency and its being well within the reach of clinical and pathological observation, cancer of the breast has received a large amount of attention.

In this connection the recent address[1] on some clinical facts regarding mammary cancer, delivered in Newcastle by Sir Hector Cameron, under the auspices of the North of England Glasgow University Club, is one of outstanding interest. The address contains some of the fruits of Sir Hector Cameron's long and peculiarly wide experience, and presents the matured judgments of a master mind. It deals with many points of the utmost importance. One of these is the fact that individual cases in their progress and issue are at variance with the present-day doctrine regarding cancer.

The cases which Sir Hector Cameron cites support the view that "whether we operate as we think, early, or whether we operate obviously late in the disease, whether by limited or extensive removals, we must remain uncertain of our results. If we escape early we may still have late recurrence." He draws attention to the impossibility of knowing when we operate early, since the small size of the growth and its recent discovery by the patient are no criterion of the duration of its existence.

In this connection he mentions cases in which the secondary mischief in the axilla preceded demonstrable primary disease in the breast. On the other hand, a relatively large mammary tumour of considerable known duration may be followed after operation by a long immunity from recurrence, and he narrates one such case where recurrence did not make its appearance till after the lapse of twenty-seven years. The appearance of cancer in the second breast may occasionally be a fresh infection: but usually it indicates generalised infection, of which it forms only one of the manifestations; and in these circumstances it is questionable if operation should be performed.

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[1] Published in the *British Medical Journal*, 6th March, 1909, p. 577.

In connection with operation he refers to rapid dissemination following the removal of a cancerous breast, and compares the occurrence with the dissemination which is found in tubercle. Another resemblance to tubercle is the way in which in some cases cancer recurrences may be confined to superficial structures, while in others the viscera become early affected. In the former, patients may live for a long time, but in the latter a fatal termination is not long deferred. A similar state of affairs obtains in pyæmia. He also draws a parallel between recrudescence in osteomyelitis cases and late recurrence in cancer. He concludes his address by expressing the opinion that the more extensive operations practised at the present day have certainly helped towards delay in recurrence.

Sir Hector has made a contribution of outstanding importance, and his paper will deservedly take a place in the literature of cancer of the breast.

THE ROYAL SOCIETY FELLOWSHIP.—The recommendation of Professor Graham Kerr, by the Council, for the honour of the Fellowship of the Royal Society has given great satisfaction in Glasgow. Since his appointment to the Chair of Zoology he has done admirable work in organising his department, and he has come to be recognised here as a power in the Science Faculty of the University.

ACTION AGAINST ABERDEEN MEDICAL MEN.—It is satisfactory to learn that Drs. Mearns and Byres, of Aberdeen, were assoilzied, with expenses, in the recent action against them. The pursuer asked for £125 damages from each for alleged negligence at her confinement. The so-called negligence was a scald, resulting from the application of hot water to check bleeding. The sheriff, commenting on the case, doubted if the pursuer would have raised this action if she had known that in all probability the defenders saved her life by promptly applying the only available remedy in the circumstances. He also expressed the opinion that in the subsequent treatment of the case the defenders seemed to him to have fully done their duty. This must no doubt be gratifying to the medical men concerned, though it can scarcely compensate for the annoyance to which they have been subjected.

Registration of Nurses.—In our last issue we referred briefly to the attitude taken up by the medical and nursing professions in Scotland towards the proposed Bill for the registration of nurses. Since then more than one public meeting has been held in Glasgow, and there has been considerable correspondence in the press on the subject. There seems to be a good deal of confusion in the minds of various writers as to the aims of those who object to the Bill as at present outlined, and it may perhaps clear up misunderstandings if we state the position of the objectors. Briefly put, they desire that the registration of nurses should be carried out in the same way as is done for the medical profession. This would result in the formation of Branch Councils for Registration being formed in England, Scotland, and Ireland. Each Branch Council would recognise examining bodies, and would supervise the examinations and guard the register in its own country. The separate registers would be embodied in one volume, in which the names registered would appear alphabetically, an initial indicating the country in which the individual had been registered.

The Branch Councils, or their representatives, could meet once or twice a year in London as the "General" Council for the Education and Registration of Nurses. Each nurse on the register would be considered as also registered all over the kingdom and in the colonies. It may seem unnecessary to mention the above details; but we do so in view of the fact that some, we hope not many, members of our profession have rather a hazy idea of the scheme of registration which holds in connection with the medical profession.

To a scheme such as is outlined above we give our cordial support. It does away with the invidious distinctions of country, and we have no doubt that, if applied to the nursing, it would work as happily and efficiently as it has done in the case of the medical profession.

Royal Army Medical Corps (T.F.)—Following on the route march of the Glasgow Territorial units there has been a rush of recruits, and many of the units, including the R.A.M.C., are now at full strength. Professional soldiers doubt if the efficiency of the Territorial force can be raised to a high level. These doubts should, in the case of combatant units, vanish with time. The training and examination of the officers of the force are of a high standard, and this will react on the rank and file. The medical units are, however, on a somewhat different platform. The officers, it is true, are well qualified to carry out the work of their profession; and a very little time would suffice to make them masters of the details which are necessary to the efficient working of a military medical service. So far as the rank and file are concerned, however, there is likely to be a difficulty in the field ambulances. The men are mostly quite efficient in first-aid work and in transport of wounded, but they have no practical knowledge of nursing the sick: and, so far as matters go at present, they have little opportunity of acquiring an extensive knowledge of this kind. It is not enough to say that sick nursing will be carried out in the general hospitals, in which the personnel is largely composed of men already trained (asylum attendants, &c.) There remains the initial care of patients in the field hospitals through which the sick and wounded will pass before arriving at the general hospitals; and while it is not intended that patients remain for any great length of time in the former, it cannot be denied that skilled attention at the beginning may make a very great difference in the result in many cases. Some method will require to be adopted whereby the members of the field ambulances will receive adequate practical training. This will necessitate arrangements being made for their instruction, for lengthened periods of time, in military or civil hospitals. We do not suggest the three years' training gone through by women nurses—such is not practicable for Territorial soldiers. But an initial training of three months, followed by annual training of not less than fifteen days, would not be too much. Even this modified training would entail considerable difficulty, as it would interfere with the men's regular trades or employments. But something of the kind will require to be considered and arranged for if the Medical Corps is to be truly efficient.

TOTAL ABSTINENCE AND LONGEVITY.—In the report of the United Kingdom Temperance and General Provident Institution for the year 1908, it is intimated that the mortality on whole life policies has been as follows:—

	Expected.		Actual.	
	Claims.	Amount.	Claims.	Amount.
Temperance section,	457	£149,321	274	£87,925
General section, -	461	136,918	407	138,905

It thus appears that whereas the deaths in the temperance section were expected to be four fewer than in the general section, there were actually one hundred and thirty-three fewer. Further, whereas the claims expected in the temperance section were more than £12,000 in excess of those in the general section, the actual claims in the temperance section were more than £50,000 less than those in the general section. The immense sum saved in the temperance section goes to swell the bonuses of the corresponding policyholders.

At the recent annual meeting of the Scottish Temperance Life Assurance Company it was reported that while both classes of lives showed very good results, there was a marked advantage in the case of total abstainers. The proportion of actual to expected claims was only 46 per cent in the temperance section, as compared with 64 per cent in the general section.

GLASGOW ROYAL INFIRMARY CLUB.—The third annual dinner was held in the Grosvenor Restaurant on Friday, 12th March. Lieut.-Col. James Coats occupied the chair, and Drs. William Gemmell and W. R. Cammock were croupiers. The "Royal Infirmary" was proposed by Dr. T. K. Dalziel, and Mr. J. D. Hedderwick replied. The toast of "Past and Present Residents" was proposed by the chairman and replied to by Drs. William Gemmell and W. R. Cammock. "The Chairman" was proposed by Dr. David Knox. Sixty-eight members were present, and a very enjoyable evening was spent. Drs. Macnair, J. Henderson, Beath Henderson, H. Wright Thomson, J. Riddell, Rankin, and Bruce represented the vocal talent. Dr. William Gemmell contributed several excellent recitations. The Club may now be said to be securely established and in a sound financial condition. There are already over 100 members.

NEW PREPARATIONS, &c.

From Messrs. Park, Davis & Co.

Three new *Vaccines* issued by the Department for Therapeutic Inoculation at St. Mary's Hospital under the direction of Sir A. E. Wright. These are put up in sealed glass bulbs carefully packed in wooden containers, and each bulb contains about 1 c.c. The specimens supplied are—*Mixed Vaccine for Acne*, containing 200 million staphylococci and 8 million acne bacilli per c.c.; *Acne Bacillus Vaccine*, containing acne bacilli alone (8 million per c.c.); and *Neoformans Vaccine*, containing 30 million micrococcus neoformans of Doyen per c.c. The last-named is for use as an auxiliary in the treatment of cancer, and it is stated that it relieves pain in this disease by suppressing local inflammation.

From Messrs. W. E. Taylor & Co.

Globyn, a very pleasant palatable preparation containing Norwegian cod liver oil and extract of malt. In the specimen submitted there are also included hypophosphites. This preparation hails from Glasgow, and is an elegant and creditable addition to the list of such preparations. It is nicely packed in wide-mouthed glass jars with glass covers.

Eastobyn, a liquid preparation containing liquid malt extract with phosphates of iron and quinine with nux vomica. Each tablespoonful is stated to contain $\frac{1}{32}$ grain of strychnine. It is thus one quarter the strength of Easton's syrup, and the sugar of the latter has been replaced by malt extract, which, of course, is not only a food but also contains a diastatic ferment. This is also a very elegant preparation.

From Messrs. Burroughs Wellcome & Co.

Vaporole Brand Drugs.—Two boxes, each containing ten hermetically sealed glass bulbs with long necks and feet. In each bulb there is a stated weight of medicament dissolved in water or suspended in a fluid vehicle, and ready for immediate hypodermic injection. A list of the different drugs so treated is supplied, and comprises those in most common demand—*e.g.*, alkaloid salts, calomel, iron and arsenic, hemisine, and pituitary extract. Unfortunately the bulbs are somewhat fragile, and three out of the twenty submitted for examination were broken in transit. Another small defect is that there is some difficulty in snapping the neck of the bulb at the mark upon it; it would be an improvement if the mark were deeper or longer. Apart from these slight defects, which the makers will no doubt correct, it may be said that Vaporole products are simple, convenient, and reliable when a sterile solution is required for injection, or when a vapour is required for inhalation.

From Messrs. Nicolay & Co.

Dr. Hommel's Hæmatogen.—A red liquid, of faint acid reaction, easily miscible with water, of palatable taste, and almost odourless. It is said to contain 80 per cent fluid hæmoglobin, 20 per cent glycerine, and a trace of aromatic flavouring. It is claimed to be entirely free from alcohol and antiseptics, though of course glycerine acts as an antiseptic. It is a highly albuminous fluid, and when well diluted exhibits on spectroscopic examination two bands which seem to be those of oxy-hæmoglobin; and this is of considerable interest, for many commercial specimens of "hæmoglobin" when diluted show the bands of reduced or methæmoglobin. It would be interesting to know how the result is brought about in the case of hæmatogen. The preparation is intended to be used in chronic diseases associated with anæmia, debility, or disorder of the skin, and in convalescence from the more acute diseases, and it is said that it should be regarded "not as a medicine but as a dietetic preparation of albumin actively promoting nutrition and regulating the absorption of iron."

MEETINGS OF SOCIETIES.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.

SESSION 1908-1909.

MEETING VI.—15TH JANUARY, 1909.

The President, DR. WALKER DOWNIE, *in the Chair.*

I.—NYSTAGMUS, AND THEORIES REGARDING ITS CAUSATION.

BY DR. W. B. INGLIS POLLOCK.

Nystagmus is a phenomenon which occurs in a large number of circumstances, the great majority of which are of an abnormal nature. Nystagmus may therefore be classified according to the character of the oscillations, or according to the conditions in which it occurs. As it is impossible to give here a complete discussion of the subject, a short review of it under both aspects may be of advantage.

Classification.—Tremor of the movements of the eyes has been separated into three varieties. The first, or the searching nystagmus of Sym, is found in adults with total blindness, or when the power of central fixation has been destroyed by retinitis or by choroiditis. The eyes will be observed to pass "from near the one canthus to near the other in a series of jerks, to return in one long sweeping movement." The rapidity of the jerks is about 10 per minute.

Duane has distinguished from true nystagmus a so-called pseudo-nystagmus, which occurs when the eyes are near the limit of movement in any given direction, and is characterised by a series of jerks in which the eyes are carried beyond the point of fixation, but in returning do not re-pass it. Pseudo-nystagmus is apparently due to muscular weakness and inability to maintain the eyes near the limit of movement, and is found in Friedreich's ataxia, of which it is one of the distinguishing symptoms in differentiation with locomotor ataxia. It also forms a considerable proportion of the nystagmus associated with disseminated sclerosis, and it may be found in perfectly healthy individuals.

Case I.—D. C., a boy of 7 years, with vision, right eye $\frac{6}{36}$, left eye $\frac{6}{36}$. Refraction + 3 D. with + 3 D. of vertical astigmatism. He was sent to me by Dr. J. C. Christie, of Glasgow. The nystagmus has been present since infancy. It is of the horizontal form, and only occurs in extreme movements, mainly to the right. These consist of short rapid jerks in the direction of the movement, with a slower return to the point of fixation. The rapidity is 60 per minute. The history did not give a difficult labour at birth.

True nystagmus may be diagnosed from the pseudo-nystagmus by the perfectly smooth and regular oscillations about the line of fixation of the eyes. It may be present at the primary position. Paresis in any direction is rare, except in the case of miner's nystagmus. The oscillations may be horizontal, rotatory, or vertical. The first are the most frequent, while the rarest forms are the mixed (composed of a combination of the horizontal and the vertical) and a converging nystagmus. The movements are almost always bilateral and symmetrical. Unilateral nystagmus is rare. The rapidity of the movements varies in the different forms, being greatest in the congenital and in miner's nystagmus, and slowest in the searching form mentioned above. It runs from 60 to 360 or 500 per minute, according to different observers, Zur Nieden[1] giving 360 and Romiée[2] 500 as the upper limit. The excursions vary from 1 to 5 millimetres. In the congenital cases the patient scarcely ever observes any movement of the surrounding objects, while this forms a most annoying symptom in the acquired forms. Vertigo may be present.

Etiology.—Nystagmus can be classed by the conditions in which it appears, and although those are so diverse and numerous, they may all be included in the following five groups; and here it must again be said that little more can be undertaken than to give the chief members of each group. These are the congenital, the occupational, the organic nervous disease, the labyrinthine, and the toxic groups. In the first, the congenital or infantile nystagmus is found in a number of conditions, which produce bilateral amblyopia in infancy. Among these are opacities of the cornea, congenital cataract, hæmorrhage or disease of the retina, and albinism. Errors of refraction are believed to be rarely the cause. The following case belonged to this category.

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[1] Zur Nieden, *Der Nystagmus der Bergleute*, Wiesbaden, Bergmann, 1894.

[2] Romiée, *Etude sur le Nystagmus des Houilleurs*, Liège, Bertrand, 1892.

Case II.—M. S., a married woman, aged 29, whom I saw while she was a patient under Dr. Walker Downie in the Dispensary of the Glasgow Western Infirmary. Vision, right eye $\frac{6}{60}$, left $\frac{6}{60}$. Refraction + 5 D. with + 2 D. of vertical astigmatism. She has had nystagmus since infancy. It is the horizontal form, and perseveres in all directions. It is most rapid to the left, measuring 350 per minute. On looking to the right it is only 40 per minute, and may gradually cease Upwards and downwards it is 120 to 150 per minute. The patient is not conscious of any movement in objects at which she looks. There is no paresis. The history did not give any difficulty at birth.

Among the occupational group, one of the most common forms is the miner's nystagmus. It has been thoroughly investigated by Snell, of this country, and may be illustrated by the following case:—

Case III.—R. G., a miner, 32 years of age, whom I saw by request in Professor Stockman's wards in the Glasgow Western Infirmary. He has been conscious of the dancing of objects before him for the last four years. It was slight at first, but has increased very much of late. He has worked in the mines since 11 years of age, at first as a half-time boy. He has only worked "at the face" during the last four years, and the symptoms began within the first year. Vision of right eye $\frac{6}{36}$, left $\frac{6}{9}$. Refraction of the right, low myopic astigmatism; of the left, low hypermetropic astigmatism. There is a strabismus divergence of the left eye for near objects and occasionally for distance. The right eye has a vertical nystagmus of 156 per minute, with an excursion of 1·5 mm. at the primary position. The oscillations are present in looking in all directions. In the left eye there is a rotatory nystagmus of 148 per minute, with an excursion of about 1 mm. at the periphery of the cornea.

Dissociated nystagmus, as it is in this case, where the movements of the two eyes are dissimilar in direction and extent, is probably only found in the acquired forms. The occupational type is also seen in paper-workers and metal-rollers. It is important to remember that miner's nystagmus is now scheduled as a trade disease under the Workmen's Compensation Act.

In the organic group, foci of disease have been discovered in the pons, the cerebellum, the corpora quadrigemina, the peduncles, and the optic thalami. True nystagmus occurs most frequently in disseminated sclerosis, but it may also be found in syringomyelia and in cerebellar disease.

Labyrinthine nystagmus may be briefly referred to. After the rotation of a normal individual, and after ceasing, direct the eyes in the opposite direction to that of the rotation, nystagmus will occur. It is absent when the labyrinth is diseased. Bárány[1] carried out a number of experiments by injecting into the ears water hotter or colder than the body temperature, and found a nystagmus towards the stimulated side in the former case, and away from it in the other.

In the toxic group there are the general anæsthetics, nitrous oxide and oxygen, and ether. The nystagmus is generally vertical, and occurs after the patient has lost consciousness. As the anæsthesia becomes deeper it again ceases.

Theories of the mechanism.—Various theories have been advanced to account for the production of nystagmus. Duchenne held that in a system of antagonised muscles the retardation of nerve impulses to one muscle of the system would produce the phenomena of nystagmus. Wilbrand associated it with a want of harmony between the centre for common reflex action of the eyeballs and the volitional impulse. Quite recently interest in this subject has been revived by the theory which Sir William Gowers[2] has advanced. It is based upon the researches of Sherrington[3] into the action of antagonistic muscles and the spinal centres. Working with so-called "spinal" animals (the spinal cord divided in the cervical region), the latter found that stimulation of the extensors or flexors of a joint produced an alternate extension and flexion, which continued for some time. He showed that the ceasing of the first extension, for example, was due to an inhibition of the spinal centre by an afferent impulse from the antagonists by dividing the nerve of these muscles and stimulating the central end. Immediately the contraction of the former group ceased. He held that the centripetal impulse originated in the tension exerted on nerve muscle spindles of the antagonists.

These facts Gowers has applied in his theory of the mechanism of nystagmus. He assumes that the centre which combines and co-ordinates the actions of the ocular muscles has also a muscle-reflex action. The centre controls the equilibrium of the antagonistic ocular muscles, but it is subjected to the action of many influences, so that its stability is easily affected. When the balance is lost the muscle-reflex action tends to commence. If we allow that such impulses may be of the nature of diminution or excess of light, as in congenital cataract and albinos respectively, disease of neighbouring nerve-centres as in disseminated sclerosis, muscular as in occupational nystagmus, or labyrinthine, or toxic, this theory gives a satisfactory working hypothesis of nystagmus, although a rapidity of 360 per minute or more scarcely allows time for the complicated nerve reactions.

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[1] Bárány, *cf. Brain*, 1906, p. 383.

[2] Gowers, *Proc. Roy. Soc. Med.*, Neurological Section, 1908, p. 71.

[3] Sherrington, *Proc. Roy. Soc.*, 1893, liii, p. 407 (ref. Gowers).

II.—Dr. JAMES F. GEMMILL gave a demonstration (microscopic and lantern) of the auriculo-ventricular muscular bundles of His, in the adult human and in certain fœtal hearts.

III.—Dr. JOHN M. COWAN showed a series of tracings of the venous pulse, taken with Dr. Mackenzie's polygraph, illustrating the conditions (heart-block, extrasystole, nodal rhythm, &c.) which are supposed to be associated with abnormal action of the auriculo-ventricular bundle of His.

MEETING VII.—22ND JANUARY, 1909.

The President, DR. WALKER DOWNIE, *in the Chair.*

A CONSIDERATION OF SOME OF THE MORE RECENT RESEARCHES ON IMMUNITY, ESPECIALLY IN RELATION TO DIAGNOSIS AND TREATMENT.

BY PROFESSOR ROBERT MUIR.

Professor Muir's paper appears as an original article at p. 241.

OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

Session 1908-1909.

Meeting III.—16th December, 1908.

(*Concluded from* p. 227.)

The President, Dr. J. M. Munro Kerr, *in the Chair.*

V.—RANDOM NOTES ON CASES.

By Dr. R. O. Adamson.

The following remarks refer to certain cases that have in recent years occurred in my practice, and, if of interest to others, must be so because dealing with events common in our daily routine, or likely to be met with :—

I. *Some purulent affections of the urinary organs in the pregnant and non-pregnant.*

Of leucorrhœa and urethritis I make no further mention, beyond, for the sake of completion in the consideration of the subject, their importance to the obstetrician and gynæcologist. I will confine myself to acute cystitis and pyelitis.

Simple acute inflammation of the bladder is a common, of the pelvis of the kidney a less common, occurrence in the female, and, if not neglected, readily cured in the healthy subject. My remarks do not apply to tubular inflammation, or that associated with neoplasm, foreign bodies, stone, or other organic complications, all of which must be diagnostically excluded.

In both pregnant and non-pregnant there are certain predisposing causes, such as constipation, disordered gastro-intestinal digestion, oxaluria which is symptomatic of imperfect intestinal metabolic processes, and any bacterial invasion of the system, including in this the ordinary, popularly so-called, "chill."

Cystitis is a bacterial invasion of the mucous coat of the bladder, and pyelitis of the pelvis of the kidney—and this may arise auto-genetically—from disorder of the system generally or locally; or by a hetero-genetic inoculation of the uterus, vagina, vulva, or urethra, which, reaching and spreading up the urethra, arrives at the bladder; or by inoculation from the use—in some cases the mis-use—of a catheter or other instrument, either bearing on itself the infection organisms, or meeting them concealed in the urethra, and then conveying them into the bladder. Clearly, in either of the two latter ways, the gonococcus may find its way to the bladder, or other septic organism, or bacterium coli communis. In the former auto-genetic manner, the bacillary invasion may take place from various directions, from the intestines, for example, towards the bladder or renal pelvis, by the lymphatic or general circulation, as in injury to the mucous coat of the bowel in severe constipation or enteric catarrh. The origin of any particular case may, and should, if possible, be determined as having naturally an important bearing on prophylaxis and treatment.

I am unable to enter into the exact bacteriology of the question, nor is it always—indeed, it is not often—necessary to do so in practice. Omitting, then, any detached statement of the actual germs involved, and the variety of cases which they, and the manner of their invasion, give rise to; dismissing the gonococcus, with which I have hardly any acquaintance; while recognising the extreme interest and importance of a complete bacteriological etiology were it attainable; I give it as my impression, with these qualifications, that, quite commonly at least, cystitis in the female, pregnant or non-pregnant, is due to the bacterium coli communis, and that this organism does not so often reach the bladder per urethram, or by the lymphatics. How frequently it may inhabit the bladder without setting up inflammation is a matter of speculation, only to be determined by bacteriological investigation in certain cases. What enables it at times to originate inflammation is not always clear, though one may postulate that the predisposing conditions of disordered gastro-intestinal digestion or a chill are factors, and also that certain subjects are peculiarly prone to suffer from attacks thus induced. I know, for instance, of one family, a mother and two daughters, who all have had cystitis more than once, and when non-pregnant, pregnant, and in the puerperium. All of us, no doubt, have a number of patients who have had repeated attacks of cystitis, who develop it if they are laid up with an ordinary cold, or without any readily perceivable cause, and in some of them it is a question whether a bacilluria is not mostly present, ready at any opportune time to develop an inflammation. In these people, no doubt, the resistance of the bladder tissues to bacterial invasion is defective. When we deal with the pregnant female there are additional predisposing causes, from the distortion of, and pressure on, the bladder by the enlarging uterus. Digestive disturbances are prone to exist in a severe form, so that it is not surprising cystitis exists. The pregnant and puerperal female must be considered peculiarly liable to purulent urinary affections.

As with cystitis so with pyelitis, it may arise in different ways—firstly, by an ascending infection from the bladder; secondly, by a direct lymphatic or arterial invasion from the intestine or general system. These latter origins are probably the most common. In the pregnant female the right kidney is the one most often involved in pyelitis, and this preference would not be so likely to be shown if the infection were always an ascending one by the ureteral lymphatics. Still, the right kidney may be regarded as the most vulnerable to either mode of infection from the greater pressure on the right ureter by the uterus, the left ureter being protected somewhat by what is called the "shielding" action of the rectum. Pressure on the ureter means disturbed circulation in it and stasis of the urinary flow, and, therefore, more liability to infection. Of recent years not a little attention has been paid in literature to pyelitis in pregnancy, though it is not, almost to one's surprise, to be reckoned as a common complication, but it is considered to have been often overlooked in the past. I have met with three cases in the pregnant and one in the non-pregnant, the right kidney being also affected in the latter, subsequent to cystitis complicating convalescence from the operation for piles.

Before leaving the etiology of these conditions, it may be well to say a further word on the part the catheter may play. Failure to use it, and hence retention, may excite cystitis, even if the retention be not of very long duration, because, undoubtedly, the vitality of the bladder is lowered and the urine exists as a stagnant culture medium. Yet, again, the catheter itself has long been blamed, and its cleanliness suspected, in the production of cystitis. Want of cleanliness should never occur, but none the less cystitis may be inevitable. Recently I had a case in the puerperium where retention was not allowed to persist, and the catheter was passed twice or thrice daily by a good nurse, with every precaution, who knew the risk, as the patient in the previous pregnancy had had cystitis. In addition to warning the nurse, I had also prescribed boric acid and buchu to be taken daily from the beginning. Urine was passed naturally on the sixth day, and the catheter and the medicine discontinued. Still, on the tenth day, an acute cystitis occurred. Further, in a non-pregnant patient, notwithstanding the most scrupulous precautions, the catheter being used once to obtain a sterile specimen for bacteriological examination, a sharp cystitis developed gradually during the next week. We are left in doubt as to whether these cases may not have arisen from a transmigration of organisms by the lymphatics from the intestine, but it is more likely that urethral organisms were inevitably carried in by the correct use of a sterile catheter. If this be so, it is difficult to guard against it.

With regard to the bladder, then, we may say that the female at any age, for various reasons, is very prone to and commonly afflicted with simple acute cystitis. This may be of many degrees of severity. I need not detail the familiar symptoms. The urine in these cases is acid, and quite often free from unpleasant odour. If the urine be ammoniacal there is a mixed infection. But from the number of acute cases I have seen, I cannot recall one in which the urine was ammoniacal, even when the illness was of some duration, or other than neutral, and most commonly it was distinctly acid. There will be blood in the urine in a fairly sharp recent attack. The pus is not ropy if the urine is acid. Ropy pus means putrefactive changes in an alkaline urine, and a mixed infection. It does not occur in the commonest forms of acute cystitis.

The treatment of these cases is usually quickly successful. But in one one or two of my older patients who are addicted to this trouble, an attack, though quickly relieved, may be slowly cured, and is prone to relapse. In some ordinary cases it may not even be necessary to confine the patient to bed, though it is usually advisable to do so. In a recent case, in a young lady who developed cystitis after curetting and dilatation of the cervix, there was some blood and plenty of pus in the urine, and the usual symptoms. Her bladder had not been interfered with in any way, and there had been no retention. She was fairly quickly cured without being confined to bed. None the less it is safer to keep the patient in her room in bed. The diet should be simple, with plenty of diluents to excite diuresis. Light and simply cooked solid food may be permitted in the slighter cases. Intestinal "antisepsis" is important, and calomel best accomplishes this, followed by salines. Boric acid in infusion of buchu is an admirable combination, and in many cases very speedily cures. Salol is also a very reliable drug, and I use these in preference to urotropin. In several cases of acute cystitis in the puerperal female, with sharp symptoms, very rapid cure was affected by a large dose of salol, 60 grains in the first twenty-four hours, with the same amount of boric acid, the salol thereafter being much reduced. This combination seems to be almost specific if given at the very outset. Should it fail I try urotropin, but usually it does not fail. Washing out of the bladder is by no means always necessary if these drugs are used at once and freely. But if a case be obstinate or very severe, then irrigation should not be delayed, boric acid solution or weak Condy's fluid being used. In one severe case in an old lady, where there was possibly an ulcer or fissure at the neck of the bladder, irrigations with 1-1000 argyrol solution, with the final injection and retention of some ounces of 1-25 argyrol solution, was extremely satisfactory after other methods had failed to relieve.

I need hardly say that good results follow the use of morphia and belladonna suppositories when they are indicated by severe tenesmus and great frequency of micturition, though frequently the measures above mentioned so quickly relieve as to render these additional drugs unnecessary.

In this rough sketch of treatment it will be obvious that I have only described my own practice, and have not enlarged upon the numerous other drugs that may be used. none of which are likely to do any better, or, indeed, so well.

I make no reference at all to chronic cystitis, and the numerous and interesting therapeutic measures that apply to it. The principles of treatment are simple—being primarily a disinfection of, and elimination by, the intestinal canal, and a diet unfavourable to continued intestinal fermentations, combined with diuresis by plenty of fluids and urinary antiseptics, by drugs for elimination by the kidneys, and by irrigations for disinfection of the bladder.

The treatment of pyelitis is based on the same principles, and does not differ in detail, save that if it is clear that the infection has not been an ascending one—that is, if there has been no cystitis—then irrigation of the bladder is needless. In two cases the use of full doses of salol and boric acid was entirely satisfactory, the one in the puerperium, the other after operation for piles. In a third case, that occurred in the pregnant female at the sixth month, boric acid seemed to increase the vomiting, and urotropin did better. But small doses of calomel seemed to be the most efficacious remedy.

In the pregnant female complete cure of pyelitis is not likely to occur till after delivery, but it usually rapidly follows then. The question of obstetric treatment may arise, for the illness may be very severe. Premature labour may occur, but the induction of labour is not often indicated on account of the cure that follows natural labour, and the fact that the disease is seldom fatal; and it would be dangerous in the acute stage, and is not necessary when that is over. It is, however, recorded by Ziegelman that pyelo-nephritis, with a tendency to pyelo-nephrosis, is often found *post-mortem* in fatal cases of puerperal eclampsia. Therefore, in this class of cases—a complicated class—it might save life to empty the uterus. I have no experience in this direction.

One word may be interpolated here as to the symptoms of acute pyelitis, whether primary or secondary to cystitis. They are much more severe than those of cystitis. The fever may be high, with rigors and perspirations, and there is frequently a remarkable prostration, with a quick and feeble pulse. In the case under my care in the pregnant female the pulse was at the rate of 120-130 for days. There is usually headache, and general pains in the body, and perhaps delirium. The bacillus coli is credited with the production of these severe symptoms. A severe pain is usually felt in the affected kidney, and it may be palpable and very tender. The urine may show more albumen than the pus accounts for, and tube-casts (pyelo-nephritis). The epithelial *débris* reveals cells said to be characteristic of the pelvis of the kidney. The chief diagnostics are the pyuria, with symptoms of severe toxæmia, and pain in the kidney.

It is needless to add that in all cases of illness, whether the symptoms directly point to the urinary organs or not, the urine should be carefully examined, and that this rule is specially to be observed by the obstetrician and gynæcologist during the whole course of pregnancy, as a routine when all seems well, and very specially when untoward symptoms arise in the pregnancy or the puerperium, and also before any contemplated pelvic operation in the non-pregnant.

II. *Two cases of post-partum hæmorrhage.*

(1) A complication of myxœdema. A lady, formerly healthy, pregnant for third time, complained during all the summer of 1907 of being chilly. Her lips readily turned bluish, and even during the few warm days of that season she felt cold. There were troublesome varices in her legs, but I could find nothing to account for her symptoms, and treated her with rest, warmth, and hæmatinics.

Labour ensued in the autumn about the expected day, but although her former labours had been rapid and easy, this one was very considerably protracted in the first stage. The second stage was more natural, and about fifteen minutes after its completion the placenta and membranes were naturally and violently expelled, with a copious amount of blood. The uterus remained contracted, but hæmorrhage continued, the blood gathering in the uterus, despite firm control by my hand, and gushing out in quantities. Manual compression and a very hot douche up to the fundus had no effect, nor did ergot hypodermically and by the mouth succeed better. The uterus was not enlarged, and was firm and well contracted, and the reason for such hæmorrhage was by no means clear to me. She rapidly became blanched and faint, and collapsed in my hands, pulseless at the wrist, the hæmorrhage continuing in less amount, all this occurring in a brief period of time, with a quite alarming loss of blood. I then compressed the abdominal aorta, the nurse administering hot saline per rectum and strychnine hypodermically. The bleeding at once ceased, and compression was kept up for half an hour. Dr. Jardine then kindly came to see her with me, and found her condition fairly satisfactory, as the pulse and consciousness were returning. We agreed to transfuse saline fluid into the subcutaneous tissues of the abdominal wall. No further bleeding occurred, and though anæmic for a time, she rapidly rallied, and made an undisturbed recovery. When she was again going about I observed that her eyelids were rather swollen and her face generally puffy and flabby, suggesting nephritis. The urine was pale and clear, but not excessive in quantity. The specific gravity was usually 1010 to 1012, and there was a trace of albumen. Her hair was dry and becoming scanty, and the scalp affected by seborrhœa capitis. She was bright and happy, but did not feel well, being very easily fatigued and still feeling cold, though not so badly as during her pregnancy. For a month or two these conditions continued, uninfluenced by treatment, and though not complaining much, she said she felt indefinably not herself, and certainly she did not look well.

While her appearance suggested Bright's disease of a subacute or chronic nature, and the urine supported this view to a certain extent, although the total quantity in twenty-four hours was not increased, there was no further indications of this affection in the state of the eyes, the nervous or digestive systems, or the heart and arteries. Indeed, her pulse was soft and the tension abnormally low, being estimated at

105 mm. mercury. She then began to take thyroid gland, and this therapeutic test yielded, I think, conclusive results. The state of her face, scalp, hair, gradually returned to a normal condition, and her whole feeling changed to one of health. The case is to a certain extent still *sub judice*, but I have no doubt really of its true nature. I saw her the other day, apparently in excellent health, and it is now ten months since she began the thyroid gland. The urine is free from albumen, though still low in specific gravity (about 1010).

I have not come across any special references to this complication in obstetric works that I have access to, though doubtless it is well known. In Dr. Ord's article on myxœdema in Allbutt's *System*, it is stated that if pregnancy occurs in these patients, hæmorrhage is to be dreaded. This danger must be due, I suppose, to an altered state of the blood: at least, in the case just narrated, there were no local factors in the uterus to account for hæmorrhage, muscular contraction and retraction all the time being well maintained.

(2) *Post-partum* hæmorrhage from placenta succenturiata, sepsis following. This case exemplifies, unfortunately, both the risks of placenta succenturiata. This lady was to be delivered of her third child, and on the two previous occasions there had been a very profuse flow of blood, though never to an alarming extent. During the pregnancy she was very helpless, with a very pendulous abdomen, aggravated by short stature and obesity. At a late period of pregnancy there was extensive œdema of the abdominal wall, due, I considered, to its pendulous condition interfering with the venous return from the surface to the femoral veins. The head was high up when the os was fully dilated after a painful and protracted first stage. The position was R.O.P., but the occiput rotated to the front fairly well, and then further descent ceased, and a fairly easy forceps delivery was required. The shoulders became fixed in the pelvis, and a good deal of traction was necessary to deliver them. The child weighed 8½ lb.

I was prepared for hæmorrhage in this case from the previous history, her poor general health during the past months, and the inertia shown by the uterus. Without interfering with the uterus, the hand was kept on it to observe its size and condition, but this did not prevent a very large amount of blood insidiously gathering in its cavity without my suspecting it, till gushes of blood in great quantity and the expulsion of many very large clots appeared in an alarming manner about fifteen minutes after the birth of the child. It seemed, therefore, that the placenta was imperfectly detached, and the uterus imperfectly retracted. I endeavoured then to express the placenta, and thus to favour more complete retraction and contraction of the uterus, but failed to do so, and much more blood was lost, so I at once compressed the aorta, which was easily done, even in this obese patient, through the widely separated recti muscles, and this immediately stopped the bleeding, and gave time to take further steps without more danger. I waited a little, and then again tried to express the placenta and succeeded, and I at once again controlled the aorta, and no more blood was lost, but the membranous bag was filled with a very large amount of congealed blood, the total loss clearly being of a grave nature.

Having examined the placenta and membranes with minute care, I considered them quite complete. To such an extent, and so suddenly, had she lost blood that she now collapsed, pale, pulseless at the wrists, and unconscious. She revived with hot saline per rectum and strychnine hypodermically, but later collapsed again, worse than before apparently. I then transfused 20 ounces warm normal saline solution under the left breast, and presently 20 more ounces under the right, with excellent effect on the pulse and general state. Frequent oral and rectal alimentation with soups, and saline in small quantities, helped to restore the balance of the fluids of the body, and for the next few days she did very well, and passed large quantities of urine. On the fourth day the temperature rose to 100° F., and then to 101° F. Slight hæmorrhage now occurred again but did not persist. Despite copious intrauterine irrigation the temperature next day rose to 101° F. and 102·8° F., so I explored the uterus under chloroform, and came at once upon a polypoid mass, presenting in the cervix, which for the moment I thought to be a fibroid. It had a broad base and was soft in structure, and I quite easily detached it and found it to be a complete rounded portion of placenta, the size of an orange, situated below the site of the main placenta. It was fœtid. Intrauterine douches were given twice daily, but a septic temperature continued, though not accompanied by unduly severe symptoms of toxæmia. This went on for a week, unaffected by the local treatment and the administration of quinine, sulphocarbolates, salol, calomel, and other general measures, so I asked Dr. Munro Kerr to see her, and the uterus was again explored, but found clear, and there was nothing in the pelvis otherwise to account for the symptoms;

and, apparently, we were dealing with a local septic state of the uterine tissues, propagated from the site of fœtid placenta succenturiata. We agreed to give "Paton's" serum, one teaspoonful four times daily, continuing local irrigation twice daily, with large amounts of normal saline solution. There was after this immediate improvement, but I must say I was quite clear in my own mind that, on the day before this was begun, the patient had commenced to improve. Be this as it may, she continued in good progress, and steadily made an excellent recovery from a state that, from its uncertainty, caused me considerable anxiety. My opinion is that "Paton's" serum did not influence her condition, though I expect if Dr. Paton were here he would claim it as another triumph for his remedy. Alas, the pleasures of the convinced therapeutic optimist are denied to me; but I might have to confess to Dr. Paton that, in a similar case, I might try his serum again!

At the confinement I had no shadow of doubt that the secundines were entire, for I examined them with great care. The *post-partum* hæmorrhage should possibly have led me to examine the interior of the uterus with my hand, and had I done so, no doubt the bleeding would have been more directly and correctly treated, and the later sepsis avoided. But the obesity of the patient, the presence of a degree of inertia at the end of labour, the cessation of the bleeding after the placenta had been expressed, all seemed to provide a sufficient explanation, and also the placenta was obviously entire, so I refrained from this examination, from fear of originating in another manner the very condition which was thus inevitably to ensue. I expect that the presence of the placenta succenturiata in the lower segment of the uterus helped to delay that contraction and retraction of the uterus necessary for the natural control of bleeding.

III. *Torsion of the umbilical cord, causing death of fœtus in the ninth month.*

In this case a lady was about to be confined of her third child, the former two being healthy and the patient also, although the course of pregnancy had been far from smooth, there being much sickness and general debility, so that the last few weeks were spent in bed. That the child was living, and its position and presentation normal, I had satisfied myself on several occasions before the facts that caused the suspicions of its death occurred. Sixteen days before the expected birth, and seven before the actual birth, the mother awoke from sleep in a fright, thinking there was some intruder in the house. She was reassured, but next day told the nurse she felt no movements, these having been brisk and frequent up till then. Two days later I saw her, and the nurse reported that no movements were being felt, and on examination I could hear no sound of the fœtal heart. Two days later the same state continued, and in two days more labour commenced, and the palpation of the fœtal head in the uterine canal suggested, by the too easy movements of the bones on each other, that the child was dead. It was expelled naturally, dead, the colour being slightly livid, and the superficial epidermis peeling off.

The state of the cord at once attracted attention. It was extremely large and swollen, and deeply congested to a purple colour in all its courses save just at and below the navel, where it was very narrow, the size of a lead pencil, exsanguine in appearance, hard, narrow, and spirally twisted. The thick part was fully as large as my thumb, and the contrast between this and the short constricted part very striking. I regret that I did not dissect it nor preserve it. I simply concluded that it had grown and developed with a spiral twist in this region, and that a gradual effacement of the vessels had come about, suddenly increased by, probably, thrombosis and rapid destruction of life. The child was a female, large and well formed. Clearly, therefore, the vital obstruction in the umbilical circulation was only severe at quite a late date. I cannot conceive that rotation of the fœtus *in utero* could have caused this at any late date, for I never found in the last month or so of pregnancy the position of the child to alter, and the large size of the child, and the very moderate amount of waters present, seemed to debar this idea from further consideration. Early torsion may have occurred, and the development of the cord may have intensified the effects of this. Reference to some of the literature on the subject seems to support this view.

IV. *Adherent pericardium, and atrophy of heart, causing sudden death in the puerperium.*

This patient was a primipara, aged 28, very fat, but not otherwise unhealthy, to all appearance. Early in pregnancy she had an ordinary quinsy (an experience formerly endured on more than one occasion she told me), which was opened, and subsided satisfactorily. About the fifth month she had pain in the right kidney and pus in the urine. I was absent at the time, but another medical man kindly attended, and on my return she was much better, a slight cystitis apparently alone remaining, and this cleared up, though a slight trace of albumen in the urine remained. However, she approached her confinement in good health and spirits, and without any apprehension on her part or mine.

I had examined her heart and other viscera, in pregnancy, as a matter of routine. She was extremely stout, with very large mammæ, and was inclined to be slightly breathless on special exertion, but there was nothing in the cardiac sounds or condition to attract notice, and the obesity and pregnancy combined seemed enough to account for her breathlessness on hills or stairs. Neither then nor after did I discover anything in her past history of special note, saving the occasional incidence of quinsies. Her labour was a troublesome one. Nature accomplished very little. The first stage was contracted, and was artificially completed by my hand. Uterine action was ineffectual in the second stage, which was terminated by forceps, the labour from first to last having endured twenty-four hours. It was well borne, however, and on the completion of the third stage, also with some difficulty, I was quite unprepared for the severe collapse that ensued within less than an hour. The pulse had been quite good all through the labour, though a little over 100 at the termination. There was no hæmorrhage beyond the normal loss. But when about to leave the house I noticed that the pulse was increasing in rate, and lessening in strength, with a physical state of prostration. I stayed beside her for some hours, and had a very anxious time, indeed, and I could not account for it. There was no traumatism and no hæmorrhage, neither external nor internal, but the heart's action became very feeble, very intermittent, with dyspnœa and collapse. By the aid of strychnine, stimulants, and nourishment, and other usual means, she gradually improved, but the pulse was very quick, irregular, and weak for days, and this was intensified by a slight sapræmic infection, with moderate fever. Cardiac tonics, with iron and strychnine, and local treatment and careful nursing gradually had their effect, and she recovered without further incident, or, so far as I could see, any warning of the impending disaster. The pulse had long settled to what seemed normal, the heart's action was steady and the sounds natural and free from any murmur at all times; she was convalescent in the usual sense of the word, and, eventually, on the nineteenth day she was allowed to rise. She continued to improve, sitting up a little each day. About the twenty-third night she was in her usual health and spirits, and had been asleep for some hours, when she suddenly awakened, called out, became convulsed and unconscious. Such was the story. I hurriedly attended, to find life extinct.

From the symptoms I suspected death to have arisen from cerebral rather than pulmonary embolism, though at a loss to account for the occurrence. I therefore pressed for a *post-mortem*, which Dr. Carstairs Douglas carried out. Nothing was found in the brain or lungs to account for death, which was, therefore, and I think correctly, attributed to the remarkable state of the heart. The pericardial sac was entirely obliterated, the heart being encased in a fibrous sheath not adherent to the chest wall. There was no recent pericarditis, and the small size of the heart and its wasted state pointed to an old-standing lesion. The heart was very small, the right ventricle exceedingly thin, muscular tissue being almost absent. The left cavity, too, was very small, and the muscle greatly atrophied. Nothing was found wrong in the other organs examined.

I regret I cannot give fuller details, but those of us who saw the state of affairs were satisfied that death had occurred from sudden failure of a heart in which the myocardium was greatly atrophied. The convulsion described to me was probably not more than the final muscular contractions in death. The wonder to me was that she had not died in my hands on the night of the confinement. I know not how I could have diagnosed this condition beforehand, for although the small size of the heart might have been deducted from the results of palpation and percussion, her obesity and large mammæ, with an impalpable apex beat, defeated any exact application of these methods. Had I suspected such a condition I might have come nearer to an apprehension of it, but I cannot recall any signs or symptoms before her delivery significant of so grave a disease, this exemplifying what we know so well, that myocardial changes are the most difficult of diagnosis. It would have been well had I known, for to be forewarned is to be forearmed—a fitting motto for our profession in all its departments.

Such a case emphasises the propriety, the duty, of examining minutely and searchingly our patients in pregnancy, sparing no pains to know them thoroughly, though a condition such as I have described may escape any scrutiny; nor do I know, had I been aware of it, what further could have been done to prevent its consequences, save a warning to the friends that cause of anxiety existed. We may conclude, too, that in a collapse such as this patient exhibited, without any readily discoverable cause, such as hæmorrhage or traumatism, obscure disease of the heart may be present, even though hitherto unsuspected, despite previous reasonable examination.

Owing to the late hour, and to the interesting character of the paper, it was decided that a discussion on the treatment of cystitis be arranged for, to take place at a future meeting.

GLASGOW EASTERN MEDICAL SOCIETY.

Session 1908–1909.

The opening meeting of the Society was held at 180 Duke Street on 7th October, 1908, when the President, Dr. J. Wilson Mathie, delivered his Presidential Address on "Pasteur," which was published in the January number of this *Journal* at page 19.

On the motion of Dr. John Patrick, the Society cordially thanked Dr. Mathie for his address.

At the second meeting of the Society, on 21st October, 1908, a Clinical Demonstration was given by various members:—

1. Dr. D. Glen showed a man, aged 26 years, a tailor, in whom tuberculosis of one lung had been arrested at the stage of excavation by treatment with human tuberculin. The history showed that for fourteen years he had suffered from various tubercular affections. In July, 1906, when attention was directed to his present illness on account of a severe hæmoptysis, the apex of the left lung was found to be excavated. In spite of treatment on sanatorium lines, he made no progress until after injections of human tuberculin (Koch's T.R.) were begun in December, 1906. Since then injections have been given at fortnightly intervals, and he has gained 2 stones in weight, and only a few bacilli of a saprophytic kind are now found in his sputum.

2. Dr. Battersby showed—(*a*) A man, aged 60 years, who had been operated on by him for inguinal hernia complicated by hernia of the bladder. The mass removed, consisting of

omentum and a portion of the bladder wall, was demonstrated as a pathological specimen. The man was dismissed from the Royal Infirmary five weeks after operation, and the result was good. (*b*) A lad with supernumerary digits on both feet. A note of this case by Dr. Battersby will appear in a future issue of this *Journal.*

3. Dr. GRANGER showed a man, aged 63 years, with evidences of symmetrical gangrene. He first became affected when he became an outdoor worker four years ago. During the first winter the helices of the ears were alone affected, but in succeeding winters the tip of the nose and the hands and digits also suffered. As a result of the separation of the gangrenous patches, both helices were now deeply notched, and the tip of the nose was flattened. The vessels were atheromatous, and an A.S. murmur was audible over the apical region of the heart. The urine was free from sugar or albumen. In regard to treatment—quinine, opium, wine, and nitroglycerin were found to be most beneficial.

4. Dr. JAMES DUNLOP read notes of—(*a*) Case of prostatic abscess following gonorrhœa. After the abscess opened into the rectum, recovery was steady. (*b*) Two cases of pain in the lumbar region of the back. In the first case the pain was due to syphilitic pachymeningitis, which yielded to antisyphilitic remedies. In the other case an inoperable sarcoma of the ilium was ultimately discovered. (*c*) A case of mitral stenosis with general anasarca. Relief was not obtained by digitalis mixture, but granules of digitaline restored the circulatory balance.

He also showed—(*a*) A sequestrum of the femur which had resulted from acute osteomyelitis; (*b*) two specimens—one from a spermatocele and the other from a hydrocele.

At the third meeting of the Society, on 4th November, 1908, Dr. S. J. CAMERON gave an address and lantern demonstration on the "Life-History and Treatment of the Fibro-myomata." In the course of a highly interesting address he dealt in detail with, and showed on the screen, numerous examples of sub-mucous, mural, and sub-peritoneal fibro-myomata, as well as several in aberrant positions, as in the broad ligament and Fallopian tube. An analysis of 100 cases gave a percentage of sterility of 30, as contrasted with 10 per cent among all married women. He further pointed out that these tumours did not always disappear at the menopause, and the danger of leaving them in expectation of a reduction in size at that period.

At the fourth meeting of the Society, on 16th November, 1908, held at the Glasgow Hospital for Skin Diseases, Dr. J. WYLLIE NICOL gave a clinical and pathological demonstration of cases of skin disease. A large number of cases were shown, some presenting the rarer forms of disease and many special features of the more common affections. Microscopic specimens were shown, and some remarks on treatment were afterwards made by Dr. Nicol.

REVIEWS.

A System of Medicine, by Many Writers. Edited by SIR CLIFFORD ALLBUTT, K.C.B., M.A., M.D., LL.D., D.Sc., F.R.C.P., F.R.S., F.L.S., F.S.A., and HUMPHRY DAVY ROLLESTON, M.A., M.D., F.R.C.P. Vol. IV, Part II. London: Macmillan & Co., Ltd. 1908.

THE editor explains in the preface to this important volume how it came about that a subject so special, and even surgical, in its nature, as Diseases of the Ear is included in a *System of Medicine.* The reason is that while in the former edition there were articles on Diseases of the Nose and Throat in the fourth volume, which served as an introduction to diseases of the respiratory organs in the fifth, it was thought advisable to issue the articles on the nose and throat in a separate volume, and thus render them more accessible to readers specially interested in them. When this decision had been come to it was not unnatural to take a step further, and include diseases of the ear, since these are so closely related in practice to affections of the nose and throat.

Diseases of the nose are described by Drs. Greville MacDonald, de Havilland Hall, and Watson Williams, Mr. Herbert Tilley and Sir Felix Semon. Diseases of the pharynx and of the larynx are dealt with by Sir Felix Semon and Dr. P. Watson Williams. Dr. Watson Williams writes on the nose, pharynx, and larynx in the acute specific fevers; Mr. Ernest Waggett on direct laryngoscopy, tracheoscopy, bronchoscopy, œsophagoscopy, and gastroscopy; and Sir Felix Semon and Dr. Watson Williams on foreign bodies in the air and upper food-passages, and on diseases of the trachea.

The new portion of the volume, on diseases of the ear, has been prepared under the supervision of Dr. M'Bride, who himself writes upon affections of the labyrinth. The other contributions have been furnished by Drs. Thomas Barr, W. G. Porter, Dundas Grant, Milligan, Cresswell Baber, Albert Gray, and Kerr Love, and by Messrs. Hunter F. Tod and C. A. Ballance.

There are a considerable number of plates, several diagrams to illustrate Dr. Kerr Love's article on deaf-mutism, and many figures, three of which are illustrations of the case of chronic hyperplasia of the mucosa of the upper respiratory tract (sclerotic hyperplasia), as first described by Dr. Brown Kelly about eight years ago. The volume is, as usual, provided with an index.

The editors and contributors deserve our hearty thanks for this admirable treatise. Not only will it be of great importance to specialists in throat, nose, and ear work, but it should be secured for purposes of reference by general physicians and surgeons, who will find in it much to instruct them, and much to tempt them to linger long and often over the perusal of its interesting pages.

Green's Encyclopedia and Dictionary of Medicine and Surgery. Vol. VII: Neriïn—Physiology (Tissues). Vol. VIII: Physiology (Nutrition)—Rhinolalia. Vol. IX: Rhinoliths—Thermotaxis. Edinburgh and London: William Green & Sons. 1908.

THE three volumes to hand bring this work near to completion.

In Vol. VII there are over 1,300 subject-headings. In addition to monographs on nerves, paralysis, peritoneum, &c., which appeared in the *Encyclopædia Medica*, there is a new article on pharmacology by Dr. J. Stewart Fowler, and the first part of an article on physiology by Professor Noël Paton. Recent information regarding parasites, such as the trypanosomes, spirochæte, &c., has also been incorporated with the former article on the subject. It is not easy to compress pharmacology into less than 20 pages; but, from inspection of Dr. Fowler's paper, we are satisfied that he has succeeded in presenting his subject in a useful, though concentrated, form. The portion of the article on physiology, included in this volume, deals with the tissues and with neuro-muscular mechanism. It is freely illustrated.

The concluding portion of the article on physiology, which is found in Vol. VIII, deals with the nutrition of the tissues, and includes a short consideration of internal secretions. The article is well written, and will serve the purpose of a manual of the essentials of the subject. Another new article in this volume is that on prescribing. The author (Dr. Fowler) draws attention to the decline of polypharmacy, and does not altogether condemn the efforts of the manufacturing chemist. The subject of "incompatibility," the bugbear of young prescribers, is illustrated by useful information arranged in tabular form.

Of new articles in Vol. IX, we would mention one by Dr. Leslie Mackenzie, on medical examination of school children, and another, by Dr. Wynn, on status lymphaticus. The volume contains nearly 1,600 subject-headings, and while many of them are dismissed in a few lines, others (*e.g.*, suppuration, syphilis, teratology) are represented by monographs on the respective subjects.

Altogether, the volumes are a valuable addition to the work, and it would be difficult to over-estimate their usefulness to the medical reader.

Transactions of the American Surgical Association. Vol. XXV. Edited by RICHARD H. HARTE, M.D. Philadelphia: William J. Dornan. 1907.

THIS volume contains the papers read before the Association at the meetings on 7th to 9th May, 1907. The presidential address, by Dr. Dudley Allen, is on the teaching of surgery, and this difficult problem is, on the whole, well handled.

Of the papers in the volume, those on cancer of the breast occupy a large space. Most of them deal with the interesting question of end-results. Of the rest, we may mention diverticulitis of the intestine, affections of the spleen, and spinal anæsthesia. These papers contain much information, and the volume will prove valuable as a work of reference.

There is prefixed to the *Transactions* a lengthy obituary notice of the late Dr. George Ryerson Fowler, which will be read with interest. Dr. Fowler, whose name is associated with the "Fowler position" in the post-operative treatment of peritonitis, succumbed to gangrenous appendicitis, in which death was due to paresis of the small intestine coming on immediately after removal of the appendix. A review of his *Treatise on Surgery*, which was published shortly after his death, appeared in our pages in 1907 (vol. lxviii, p. 222).

Diathesis and Ocular Diseases. By A. MAITLAND RAMSAY, M.D. With 17 Original Plates. London: Baillière, Tindall & Cox. 1909.

UNDER this title Dr. Maitland Ramsay has published his post-graduate course of lectures delivered in September last, and the lecturer is to be congratulated both on his choice of a subject and on his exposition of it. In the preface the author disclaims any attempt at systematic or exhaustive treatment of his theme, and the standpoint of personal clinical experience is maintained throughout. Every page bears witness to careful and extended observation, not only of ocular disease, but also in general medicine; and the inter-relation of ophthalmology with general pathology and therapeutics is most convincingly displayed. The style is simple and lucid, leaving one in no doubt as to the author's teaching, and carries much of the freshness of the spoken word.

One finds abundant intrinsic evidence of the author's familiarity with the most recent views and researches in ophthalmology and in general medicine, and therefore his protest against the present tendency to bring practice, and especially therapeutics, under the too rigid rules of a science carries the more weight. His claim for the value of "a sane empiricism" in therapeutics is moderately but convincingly put forth in connection with the remarkable effect of anti-diphtheritic serum in relieving pain and controlling acute inflammations of the uveal tract; and this undoubted fact suggests a wide field for investigation in serum therapy.

The cases quoted in illustration of the various conditions described are full of interest, and form pictures admirably clear and distinct; while the drawings interspersed in the text are of great service in elucidating points under discussion.

The note of the book throughout is practical, and its aim is to give guidance and direction in the recognition and management of conditions which are sure to come under the care of the general medical practitioner. No student can now finish his course without some knowledge of ophthalmology; and this little book, carefully read, will serve to link up such knowledge with the doctrines of general pathology and therapeutics. It is calculated to focus attention on essential points both in diagnosis and treatment, and gives clear teaching on matters of great importance which often emerge, and which, if overlooked or misunderstood, may affect vision disastrously.

Books such as this hold a place of their own in medical literature. They take the reader into the confidence of men of wide experience, who have met and solved for themselves some of the puzzles that beset the young practitioner, and Dr. Ramsay's account ever bears the stamp of conscientious investigation and wise management of the conditions discussed. It will be read with profit by those to whom it is specially addressed: but others with special knowledge are likely to find in its pages hints and suggestions that may open new vistas and lines of thought. To mention only two large questions that emerge from the perusal of the book: the use of anti-diphtheritic serum in the treatment of ocular diseases, and the important rôle played by oxaluria in the causation of serious eye conditions, warrant a careful reading by all engaged in ophthalmic practice.

The little work—its nine chapters occupy 180 pages of good type—merits a place among the friendly and helpful books which the practitioner likes to have near his hand; and its usefulness is enhanced by an index, whose only fault is that it is, perhaps, too full, if that were possible in an index.

A Text-Book of Diseases of the Nose and Throat. By D. BRADEN KYLE, A.M., M.D. Fourth Edition. Philadelphia and London: W. B. Saunders Company. 1907.

DR. BRADEN KYLE'S text-book has met with a considerable measure of success to attain a fourth edition since 1899. In our notice of the volume after its first appearance we referred to the interesting and original views held by the author on many of the matters dealt with. While still differing from him as to not a few of these, we cannot withhold our admiration for the industry that has brought together the vast amount of information of an up-to-date character in the edition before us. The volume now contains about 800 pages, 50 of which are devoted to an excellent index.

Paraffin in Hernia. The Cure of Rupture by Paraffin Injections. By CHARLES C. MILLER, M.D. Chicago: Oak Printing Company. 1908.

THIS booklet is hardly worth a serious criticism. It is quite devoid of reliable information as to the behaviour of paraffin in the tissues. It is loosely stated that in time it becomes replaced by fibrous tissue; though, so far as we can judge, the author expects to recover paraffin in those cases in which he has to resort to the open method of operation after failing to obtain a cure by the injection method.

We are not clear for whose benefit the book was written. The interesting, if elementary, details with regard to anatomy, antiseptics, &c., which are included in the text, are surely never intended for the modern physician. Such important facts as the line of the deep epigastric artery and the distinction between oblique and direct hernias find no place in the text.

The book concludes with ten case reports. These are altogether imperfect and unsatisfactory, and most effectively dispose of any claim which the author may think he deserves to serious consideration. This is not the sort of book we expect from American physicians.

The Student's Handbook of Physiology. By the late Arthur Clarkson, M.B., C.M. Ed., and David A. Farquharson, M.B., C.M. Ed., F.F.P.S.G. Edinburgh: E. & S. Livingstone. 1908.

As explained in the publishers' preface, this book was begun by the late Dr. Arthur Clarkson, and on his death the work was completed by the present author, who is, however, only responsible for the chapters on the nervous system and special senses, the rest of the book remaining as written by Dr. Clarkson.

The book opens with a chapter dealing mostly with the chemical constituents of the body, and we are rather disappointed to find that the old terms for the proteins are used, nor is the newer nomenclature used anywhere throughout. This is rather unfortunate from the student's point of view, as confusion is likely to arise in the examination room if terms are used with which he is not familar. The protein classification used, while it contains most of the groups, has no mention of some of the more modern sub-divisions. Any classification, however, in the present state of our knowledge can only be provisional, and that adopted in this work will serve.

The blood-cells are dealt with in the second chapter, but the names used in describing the varieties of white blood corpuscles are not quite what we are accustomed to nowadays, and no reference is made to such terms as "lymphocyte," "polymorphonuclear," "mast cell," &c., nor are the proportions of these cells in normal blood given. The important subjects of coagulation and the chemical and physical properties of the blood are not discussed in this chapter, but taken up well on in the book, after the physiology of the heart, blood-pressure in arteries, and vasomotor nerves have been gone into. This arrangement might be improved on, and the whole subject of the blood might be dealt with in one chapter. The pioneer work of Andrew Buchanan of Glasgow (1830) on the subject of coagulation is not noticed. No mention is made of the modern views regarding the formation of thrombin by the action of thrombokinase or thrombogen in the presence of calcium salts; in fact, these terms are not made use of, the older views of fibrin formation being given.

The chapters on histology, muscle, and nerve are good, and the diagrams of electrical apparatus and nerve-muscle experiments very good.

The part of the book on the digestive process is well arranged, but here again no mention is made of modern views. The recent work of Starling, regarding "hormones" and their influence on the production of the various digestive secretions is not dealt with.

The cerebral nervous system and the special senses are well described and illustrated by excellent diagrams.

The older description of the process of development is adopted; the present-day views on human embryology are not gone into.

On the whole, however, the book is a good compendium of the main facts in physiology, and these are presented to the student in a form which is at once readable and clear. There is no undue packing in the work, and, apart from the unfortunate circumstance that the book has been published without being brought quite up to date in some subjects (a fault which we trust will be remedied in a future edition), we can commend it as a useful addition to the many text-books on the subject.

A Text-Book of Minor Surgery. By Edward Milton Foote, A.M., M.D. Illustrated by 407 Engravings from Original Drawings and Photographs. London: Sidney Appleton. 1908.

The author holds that in surgical text-books the minor surgery, which forms the bulk of surgical practice, is condensed into a chapter or two, and the present work has been written to meet the deficiency.

At the very outset the author strikes a disagreeable note. The dedication to the "man at the point of the knife" is beyond criticism, and the author's reference, in the preface, to his wide experience and rich opportunities is strongly suggestive of the big drum and the showman's booth.

On turning to the contents of the volume, however, we are agreeably surprised. Although the inclusion of such operations as excision of tuberculous cervical glands, closing of cleft palate, removal of thyroglossal cyst, &c., is hardly in keeping with the professed aims of this book, the latter contains much information which will be of value to the general practitioner.

The various regions of the body and limbs are considered systematically, and the concluding section deals with technique, bandaging, and dressings.

The matter is well presented, the illustrations vary a little, but are in the main good, and the volume is supplied with an index.

Hernia: Its Cause and Treatment. By R. W. MURRAY, F.R.C.S. London: J. & A. Churchill. 1908.

In this small book the author expounds the "saccular" theory of hernia. He bases his conclusions on a series of *post-mortem* examinations in which a considerable proportion of the bodies showed "potential" hernia sacs in the various regions in which hernia is met with clinically. Acting on the view that hernia occurs into a *congenital* pouch, he bases his treatment on the complete extirpation of the sac.

There is much to be said for the saccular theory. One result of its adoption will be a revision in the nomenclature of inguinal hernia, while another will be a simpler method of operating for its cure. The author has made out a good case, and we commend the volume to all.

Eye, Ear, Nose, Throat. By CASEY A. WOOD, M.D., D.C.L.; ALBERT H. ANDREWS, M.D.; GUSTAVUS P. HEAD, M.D. Chicago: The Year Book Publishers. 1908.

This review, which is published yearly, deals, as its title shows, with articles relating to these special branches which have appeared during the preceding year. It would be easy to criticise it adversely by pointing to the omission of contributions, some of very decided importance, probably more especially in connection with diseases of the ear and the nose, as well as to the inclusion of articles of no real worth. Such errors are bound to arise in dealing with the large amount of literature involved. On the whole, however, the editors should be commended for the very useful volume they have compiled, and both the specialist and the non-specialist will find it of value—the former as an aid in referring him to articles he might wish to study in the original, the latter as a help in keeping him *au courant* of the work being done. The book is of convenient size, about 300 pages, and has some good illustrations. The articles in the different subjects are considered under various well-defined divisions, and there are both a good index and a full list of authors. Among contributions of interest we notice particularly those dealing with defective vision and hearing in children (subjects of importance in connection with the medical inspection of schools), the dependence of certain eye conditions on affections of the nose and nasal accessory cavities, labyrinthine suppuration, and laryngeal tuberculosis.

Transactions of the Twenty-Ninth Annual Meeting of the American Laryngological Association. New York. 1907.

THE volume contains twenty-five original articles, many of which are of interest and importance. Dr. C. R. Holmes' paper on erysipelas and its relation to purulent inflammations of the nasal and aural cavities merits special attention for thoroughness and originality.

Dr. Chevalier Jackson's experiences, as related in his contribution on ligation of the external carotid artery, considered from a rhinological and pharyngological standpoint, must surely be exceptional. He has tied the external carotid 38 times in 30 cases, in 7 of these for hæmorrhage after tonsillectomy.

Vitality, Fasting, and Nutrition. By HEREWARD CARRINGTON. London: Rebman, Limited. 1908.

"THE whole human race is sick," "the medical world is entirely wrong;" these are statements in this book. The author asserts that all diseases are essentially *one*, have a common cause, viz., overeating, and that there is a *panacea*, viz., fasting. Their etiology is further explained by the statement that the excess of food ingested tends to block up the finer blood-vessels, and cure is brought about by the removal of this blocking material by fasting. This is the main theme of the book; a secondary theme is that no energy is derived from food, but that, on the contrary, digestion and assimilation actually remove energy from the body. Energy is supposed to flow into the body in some mysterious way during sleep, and to be derived from some external store of energy in the universe. Other matters discussed are vitality, sleep, death, bodily-heat, and the particulars of how the fasting cure should be carried out. The book is a large one, and is full of the distorted views of a faddist who endeavours to twists facts to suit his fixed ideas. The majority of the quotations given in it will not be classed as arguments by anyone who has knowledge of, and belief in, the modern views of physiology and pathology. The author apparently does know something of these modern views, but where they are against his theories, which is almost always the case, he simply asserts that they are wrong. The book is hardly worth reading.

Handbook for Attendants on the Insane. Fifth Edition, Revised and Enlarged. Published by the Authority of the Medico-Psychological Association. London: Baillière, Tindall & Cox. 1908.

Considering the unusually detailed description given for a volume of this kind of the anatomy of the nervous system, including diagrams of the neurone and of the motor and sensory pathways, &c., we think that the section on the anatomy of the trunk and limbs is inadequate. There is no illustration of the organs *in situ*, and, excepting the heart, the only ones depicted are the stomach and intestines and the trachea and bronchi with one lung attached. There is no illustration of either joints or blood-vessels. In spite of these omissions the usual instructions are given for the arrest of hæmorrhage; and in cases of choking the attendant is to feel that the epiglottis is free, without having been informed where this structure is to be found. Other examples of this defect might be given.

If a knowledge of the contents of this volume is to be made the basis of promotion in the case of asylum attendants, we think it unfortunate that so much space is devoted to the consideration of the mind in health and disease. Mastery of these chapters would entail education—almost up to a university standard—and we can say from our own knowledge that there are in asylums excellent head attendants who, although not highly educated, are nevertheless men and women whose exclusion would be a misfortune. The section on diseases of the nervous system has perhaps the same defect. To the sections on general care and nursing we can give high and almost unqualified praise. It might have been well to emphasise the danger of allowing a patient with typhoid fever to obtain solid food; also that of allowing a simple fracture to become compound.

The volume as regards size, printing, and binding leaves nothing to be desired, and the twenty illustrations are excellent.

Fads and Feeding. By C. Stanford Read, M.B. Lond. London: Methuen & Co. 1908.

This is not a book of the ordinary "what to eat, drink, and avoid" sort. In the few instances where the author assumes the dogmatic mantle, he is far more resolute on the matter of quantity of food than on the differentiations of quality. Moderation in quantity, and the complete insalivation of what is eaten, would benefit every individual, and, consequently, the whole of society, much more than very strict rules and ideas about the properties of various foods. For such an easy-going writer, Dr. Read is comparatively firm on the subject of alcohol, which, in his opinion, "should be regarded as a narcotic poison which we individually, and as a nation, would be far better without." He discusses the Salisbury system and Fletcherism, and, as might be expected, claims man to be designed as a mixed feeder.

Much is said in the volume which, if not new, is at least true; and when Dr. Read ventures into the field of suggestion, his views are so reasonable that the reader (no pun meant) is kept mentally bowing nearly all the time.

Altogether, this is a volume which young doctors, students, and intelligent laymen should read once in their lives.

The Treatment of Gonorrhœa in the Male. By Charles Leedham Green. Second Edition. London: Baillière, Tindall & Cox. 1908.

This is a revision of the successful original book published in 1906. It is a little monograph on a serious condition, and in form and style is unequalled. From preliminary anatomy and physiology the whole work is built up gradually, and after reading it we are glad to compliment the author on producing one of the most interesting medical books we have ever read.

The pathology has been deeply studied; thus the diagnosis may be related to the pathological condition, and emphasis is laid on the fact that the condition as well as the disease must be ascertained before treatment can be effectual.

Stress is laid on the diagnosis of anterior and posterior urethritis, and the clinical and physiological distinction into anterior and posterior urethra is clearly given, and contrasts with the anatomical and classical division of the urethra into three portions.

The extensions by continuity into bladder, prostate, vesiculæ seminales, and testicle are described, as well as the more remote effects of metastasis. A chapter is added on the evidences of cure as studied in relation to marriage.

The writings of many authors are quoted with the personal experience of the author. The result is a highly successful work.

Medical Examination Questions set at the University of Edinburgh, R.C.P. & S. Edin., and F.P. & S. Glasg., for Several Years. Edinburgh: J. Currie. 1908.

State Board Questions and Answers. By R. Max Goepp, M.D. London: W. B. Saunders Company. 1908.

Teachers are well aware of the interest displayed by students in papers set at examinations. This interest is, if kept within limits, quite reasonable, and the small volume issued by Mr. Currie will doubtless be often consulted by the candidates for the M.B. of Edinburgh and for the triple qualification.

In Messrs. Saunders' volume we have a selection of questions set by the State Board of America during the past four years, together with answers to the same. In preparing the answers, the compiler, Professor Goepp, has had the assistance of several colleagues, and the result is a compend, or *omnium gatherum*, such as we have not before seen. The book is designed for those who wish to prepare themselves for State Board examinations, but we have no doubt that it will commend itself to a wider circle of readers. With the assistance of the table of contents and the copious index, it is a matter of ease to lay one's finger on the information desired, and we have to congratulate Dr. Goepp on the production of the volume.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

MEDICINE.

Influenzal Meningitis. By Benson A. Cohoe, M.D. (*American Journal of Medical Sciences*, January, 1909).—The author reports a case of influenzal meningitis with recovery, and gives a very full *résumé* of the subject. The patient, a man of 33 years, was admitted to hospital showing signs of meningeal irritation. Two weeks previously he received a blow above the left ear, following which he had remained in bed, complaining only of dizziness and pains in the head. On admission there was extreme restlessness and some delirium. The neck was held stiffly, with some retraction, and Kernig's sign was marked. The right eye showed slight external strabismus. There was no evidence of an acute rhinitis. Herpes labialis was present. A scalp-wound was found above the left ear. Heart and lungs were normal. The spleen was not enlarged. Both ears showed evidence of chronic middle-ear catarrh. Ophthalmoscopic examination showed both discs to be very hyperæmic, œdematous, and slightly swollen. The arteries and veins were large, and the veins quite tortuous. In the upper part of the right disc the remains of a small hæmorrhage was seen. Lumbar puncture yielded a slightly turbid fluid under increased pressure. The temperature and pulse chart simulated closely that of typhoid fever. The pulse-rate was slow throughout. The temperature fell to normal on the fifteenth day after admission, and remained so, except for a rise to 104·5° after three days of normal temperature. The respirations never rose above 24 per minute. The highest leucocyte count obtained was 13,120.

The cerebro-spinal fluid contained numerous polynuclear cells and a few diplobacilli, extra- and intra-cellular. On blood-agar a pure culture of a bacillus, conforming biologically and morphologically with the bacillus of Pfeiffer, was obtained. Blood-cultures yielded negative results, and the patient's serum did not seem to possess specific agglutinins. Animal inoculation failed.—Archibald W. Harrington.

The Cammidge Reaction in Experimental Pancreatitis. By John Speese, M.D., and Edward H. Goodman, M.D. (*American Journal of Medical Sciences*, January, 1909).—This paper is a preliminary report of the examination of urine for the Cammidge C. reaction in pancreatitis produced experimentally in dogs. In five dogs 10 to 30 c.c. of cotton-seed oil was injected into the pancreatic duct, a procedure which causes rapid necrosis of the pancreas. The dogs were killed eight hours after the operation. In four cases a positive reaction was obtained. In the fifth case the reaction was negative, but pathological examination showed neither macroscopical nor microscopical lesions of the pancreas, the attempt to inject oil into the pancreatic duct having been unsuccessful.

In three cases a non-acute pancreatitis was produced by ligation of the pancreatic duct. The urine was examined prior to the operation, and at the end of each twenty-four hours following it. After a positive reaction was obtained, the animal was killed and the pancreas removed for microscopic study. In the first case the reaction was positive on the second day, in the second case on the first day, and in the third on the fifth day. From the anatomical lesions produced the authors infer that mechanical obstruction of the duct seems to be productive of a positive Cammidge reaction. Further studies are being undertaken, and the results of these will be published in a future report.—ARCHIBALD W. HARRINGTON.

Heredity in Diabetes Mellitus. By R. T. Williamson, M.D.Lond., F.R.C.P. (*Medical Chronicle*, January, 1909).—The author bases his conclusions on an investigation into the family history of 350 patients suffering from diabetes mellitus—100 occurring in hospital and 250 in private practice—and of 50 patients as a control, who did not suffer from this disease. In no case of the last series was a family history of diabetes obtained.

Of the hospital cases, a family history was obtained in 13 per cent. and in 18·8 per cent of the private cases. In 100 cases in private, in which a most careful enquiry was made, a history was obtained in 22 per cent. He concludes that 22 per cent may be taken as the minimum percentage in which a history could be obtained, and that in the other series a more careful enquiry would have raised the figures obtained. A family history was obtained more frequently in patients under 40 years than in those over 40.

The relatives of diabetic patients who suffered most frequently were—brother, mother, father, sister.

The husband or wife of a diabetic patient suffered from the disease in 5 instances in 250 patients. These, he thinks, may be explained on the ground of the anxiety and worry consequent on the nursing of the other, or that both may have been subjected to the same mental strain.—GEO. A. ALLAN.

The Value of Hæmolysis in the Diagnosis of Carcinoma. By Wyman Whittimore, M.D. (*Boston Medical and Surgical Journal*, 21st January, 1909).—The author makes a short *résumé* of some of the work that has been done on similar lines, and reports a series of cases. The results are very contradictory. Ascali studied the effects of human serum on human red corpuscles in 114 cases. Hæmolysis occurred in two cases of gastric carcinoma and in many cases of tuberculosis and pneumonia. Killing, using corpuscles of sheep, cows, and chickens, got positive results in 43 per cent of malignant cases, and considered it specific when it occurred. Fischel, using the same technic, got the reaction in tubercle, pernicious anæmia, and in heart disease. Weil, with human corpuscles and serum, obtained a positive reaction in 40 per cent of early malignant tumours, in 56 per cent of late malignant tumours, in 33 per cent of benign tumours, in 26 per cent of cases other than malignant, and did not get it in 6 normal cases. Coile got positive results in 82 per cent of carcinoma, and not in benign tumours or normal cases.

The author investigated 109 cases—22 carcinoma, 8 tuberculosis, 39 normal, and 32 other cases. Positive results were obtained in 36 per cent of cases of carcinoma, 50 per cent of tuberculosis, 17 per cent normal cases, and in 6 per cent of other cases.

He concludes from these results that hæmolysis is of no value in the diagnosis of carcinoma.—GEO. A. ALLAN.

NERVOUS DISEASES AND INSANITY.

A Case of Polyneuritis of Autotoxic Origin with Korsakow's Syndrome, with report of Autopsy and Microscopic Findings. By M. O'Malley, M.D., and Shepherd Ivory Franz, Ph.D. (*American Journal of Insanity*, October, 1908).—The case is that of a woman, æt. 59 years, who was admitted to the Government Hospital for the Insane, Washington, on account of her mental symptoms.

Muscular weakness and some degree of paresis had been present for several years, but the mental symptoms associated with the condition had not made their appearance until a fortnight before admission. She was found to present a complex of symptoms, leading to the diagnosis of a neuritis associated with mental confusion, with hallucinations of sight and hearing and confabulation. The limbs were swollen and tense, and painful on movement or on pressure along the nerve trunks. Voluntary movement was absent, and there was general muscular tremor with foot and wrist-drop. The deep reflexes were notably exaggerated, but no plantar response could be elicited. There was a slight degree of ptosis, and the patient had no control over bowel or bladder. The modifications of sensation were some loss of tactile sense with incomplete allocheiria, and exaggeration of pain sense. The mental complex comprised a degree of noisy confusion, with hallucinations of both sight and hearing and paramnesia. Attention was defective and there was disorientation as to time and place. Within a few days the confusion became somewhat less marked, and with this control over the sphincters returned. Throughout the illness, however, a diagnosis of mental confusion persisted, with hallucinations of sight and hearing, especially at night, and disorientation as to place or persons, while fabrication was constantly present. The condition of the reflexes was noteworthy in that the exaggeration continued to be a marked feature for fully a month, while the plantar reflexes, absent on admission, were first elicited after three weeks.

As the disease progressed this reflex activity became modified, but at no time were the patellar tendon reflexes absent, although the Achilles jerk disappeared in the terminal stages. The illness terminated fatally in three months, an intractable diarrhœa with subsequent development of an extensive bedsore arising as complications.

Post-mortem examination showed the presence of an acute degenerative process in the sciatic and brachial nerves, more markedly in the former. Peripheral thinning of the spinal cord was found in the direct pyramidal tracts, with marginal degeneration in the direct cerebellar tract and in portions of the columns of Goll and Burdach and in Gowers' tract In the dorsal portion of the cord the degenerative process was limited to the marginal portions of the tracts, but in the lumbar region there was evidence of deeper degeneration in the anterior longitudinal bundles. Throughout the grey matter there was a slight amount of peppering, with the most noticeable changes in the anterior or posterior grey commissures. Accumulation of chromatic substance was found in the cells of the anterior horns, many of them staining deeply with picric acid.

One of the most striking features in the case was the condition of the reflexes, both deep and superficial. This departure from the usual finding in cases of neuritis the authors seek to explain by contending that during the early stages, owing to the hypersensitive state of the neurones, exaggeration is to be expected, and that it is only the insufficiency of our present data that leads us to conclude that abolition or at least diminution of reflex activity is characteristic of neuritis.

From the history furnished it is impossible to determine the exact duration of the affection, but it appears probable that the neuritis began only a few weeks before admission. No history of alcoholism could be ascertained ; and in the absence of data providing any of the usual etiological factors associated with neuritis, the authors suggest that the condition might be regarded as of the nature of an idiopathic multiple neuritis, or, as they provisionally term it, of autotoxic origin.—T. D. M'Ewan.

Clinical and Anatomical Analysis of 23 cases of Insanity arising in the Sixth and Seventh Decades, with Special Relation to the Incidence of Arteriosclerosis, Senile Atrophy, and Distribution of Cortical Pigments. By Southard and Mitchell (*American Journal of Insanity*, October, 1908).—The 23 cases on which this article is based are taken from a series of 472 autopsies, and are chosen on the ground of probable onset of mental disease in the sixth and seventh decades, and in the case of females the fifth decade, which period the authors recognise as the most difficult in which to arrive at a diagnosis of the mental state. Of their cases they classify 2 males as alcoholic, 5 females as paranoic, 3 males and 1 female as delirious, 1 female and 2 males as maniacal, 3 females and 6 males as depressed.

Hereditary factors were present in 47 per cent of the series as a whole, and in 74 per cent of the cases in which a reliable history was obtained. Arteriosclerosis was recognised clinically in 10 cases and anatomically in 20. There was marked general arteriosclerosis in 4 cases—3 were paranoics and 1 was maniacal. There was aortic sclerosis in 18 cases; 9 cases showed cerebral arteriosclerosis; there was heart disease in 9, and kidney disease in 21 cases.

With regard to the correlation with atrophy of the brain, they note that atrophy of the brain is more marked in the females than among the males; but as the duration of life beyond the onset of the mental disease is also greater among the females, they naturally conclude that atrophy is a function of longevity rather than one of mental disease.

With regard to the distribution of the cortical pigments, the most interesting feature of their study was that the pigments were accumulated most largely in the bodies of the smaller nerve-cells in various cortical regions, perhaps more particularly in the suprastellate nerve-cell layers. Although it was probable that no brain was absolutely free from such pigmentation, yet 4 cases showed very little pigment in the nerve-cells. In 3 cases in which the precentral area showed excess of pigment, whereas the other areas were comparatively free, conduct disorder was a marked clinical fact. Perivascular cell pigmentation was a constant feature in all 23 cases. The lightest male and the lightest female brain showed only slight perivascular deposits. There was marked neuroglia cell pigmentation in alcoholic subjects.

From these facts the authors conclude that neither senile changes nor arterial changes have any necessary connection with the development of insanity in the sixth and seventh decades; that arteriosclerosis, senility, and the various forms of insanity are entities which frequently interpenetrate, but are logically and genetically quite separate. Perivascular cell pigments afford some index of the degree of faulty metabolism of the brain tissue; the neuroglial cell pigments vary rather with the age of the individual, and to some extent with the abuse of alcohol; the nerve-cell pigments are subject to the greatest variation, and depend on some undetermined principles. -R. M. Marshall.

DISEASES OF THE SKIN.

A Study of Acnitis, with Report of an Extensive Case. By Dr. J. F. Schamberg (*Journal of Cutaneous Diseases*, January, 1909).—This communication is of special interest in view of the uncertainty as to the etiology of these rare cases, which have been described under a variety of names, amongst others, acne agminata (Crocker), acne telangiectodes (Kaposi), disseminated follicular lupus (Tilbury Fox), hydradenitis destruens suppurativa (Pollitzer). Dr. Schamberg's study of the literature, and his very complete histological, bacteriological, and experimental examination of his own case, lead him to the conclusion that the cause and nature of acnitis must meantime be set down as unknown. He sums up our present-day knowledge as follows:—

Barthélemy regards intestinal auto-intoxication as a factor. Most of the French dermatologists view acnitis and folliclis as identical, and look upon the affection as a tuberculide. Crocker says acnitis "is not in anyway connected with tuberculosis, either in the patient or family history."

A study of the subject appears to the author to strongly bear out the contention of Crocker.

The facts in favour of the tuberculous nature of the disease are the resemblance of the disease to folliclis, the occasional occurrence of tuberculosis in other members of the family, and the tuberculous aspect of the histological sections. Galloway and MacLeod, after a microscopic study of a growth in one of Perry's cases, remark that the evidence was undoubtedly in favour of the tubercular origin of the disease.

That the nodules of acnitis are not due to the organism of tuberculosis in the tissues is proven by the failure of all investigators to find tubercle bacilli in the nodules, and the negative result from inoculation of pus and fragments of nodules into guinea-pigs.

The absence of any definite reaction after the Calmette ocular tuberculin test, and the subcutaneous tuberculin injections in Dr. Schamberg's patient, makes it extremely unlikely that he is suffering from any tuberculous focus in the body.

The general tuberculous aspect of the sections of the nodules is bereft of much importance, since Gilchrist has demonstrated that ordinary deep acne lesions may show upon microscopic study numerous giant cells, suggesting in appearance tubercular structure. The spontaneous and permanent cure of acnitis after its course is run is against the assumption of a tuberculous focus in the body liberating toxins, for the disease appears to get well after the operating cause ceases to act.

From a consideration of the above facts, it would appear that there remains but little basis for the assumption that acnitis is of tuberculous origin. The character of the lesions, the course of the disease, and the microscopic picture suggest a parasitic granuloma. The failure to find the causative agent may be due to imperfect technique. There is also the possibility suggested by several writers that a toxic substance eliminated through the sweat glands may play an etiological *rôle*, but this hypothesis seems to Schamberg, less likely.—J. Wyllie Nicol.

The Epithelium of the Buccal Mucosa. By Dr. W. Thorold Quaife (*British Journal of Dermatology*, December, 1908).—Dr Quaife undertook this investigation with the object of clearing up the question whether the buccal epithelium possesses a layer of cells containing keratin, it being frequently stated, especially in connection with leukoplakia of the tongue, that horny thickenings do occur. By buccal mucous membrane he means the epithelial of the mouth cavity, including that of the tongue, cheeks, and of the moist inner surface of the lips—the dry, red portion of the lips being epidermal. He studied the normal mucous membrane and also scrapings from patches of thickened mucosa from two cases—(1) a case of extensive leucoplakia buccalis of two years' duration; (2) a case of lichen planus. The following is a summary of his conclusions:—

1. The buccal mucosa resembles in its general structure the epidermis in possessing a proliferating basal layer of cells, the daughter-cells of which differentiate to form finally a layer of protective cells.
2. The daughter-cell appears in the later stages of its differentiation as a large cell with a small nucleus, scanty peripheral protoplasm, and, relatively, a large, clear perinuclear space.
3. No kerato-hyalin nor eleiden present.
4. In the deeper portion the intercellular lymphatic spaces are well marked and are crossed by numerous distinct "prickles."
5. The superficial protective layer is composed normally of nucleated cells smaller than epidermal horn cells, and these cells do not possess keratin "prickles" nor any form of keratin.
6. At the junction of the epidermis and the mucosa the change from the one to the other is usually very abrupt.
7. In certain pathological conditions of thickening of the mucosa the cells have advanced farther in their differentiation, resembling the epidermal horn-cell more closely in being larger and having no nucleus and possessing definite "prickles," which, however, are not of the nature of keratin.

—J. Wyllie Nicol.

Books, Pamphlets, &c., Received.

Manual of Operative Surgery, by H. J. Waring, M.S., M.B., B.Sc. Lond., F.R.C.S. Third edition. Illustrated with 521 figures, several of which are in colour. London: Henry Frowde and Hodder & Stoughton. 1909. (12s. 6d. net.)

Constipation and Intestinal Obstruction (Obstipation), by Samuel Goodwin Gant, M.D., LL.D. With 250 original illustrations. London: W. B. Saunders Company. 1909. (25s. net.)

Manual of Diseases of the Ear, including those of the Nose and Throat in relation to the Ear, by Thomas Barr, M.D., and J. Stoddart Barr, M.B., Ch.B. Fourth edition, entirely revised and largely re-written. With 3 coloured plates and 215 illustrations. Glasgow: James MacLehose & Sons. 1909. (14s. net.)

Operations upon the Uterus, Perineum, and Round Ligaments, by W. J. Stewart M'Kay, M.B., M.Ch., B.Sc. London: Baillière, Tindall & Cox. 1909. (21s. net.)

Text-Book of Diseases of the Nose, Throat, and Ear, for the use of Students and General Practitioners, by Francis R. Packard, M.D. London: J. B. Lippincott Company. (15s. net.)

Text-Book of Gynecological Diagnosis, by Dr. Georg Winter, with the collaboration of Dr. Carl Ruge. Edited by John G. Clark, M.D. After the third revised German edition. Illustrated by 4 full-page plates and 346 text illustrations in black and colour. London: J. B. Lippincott Company. (25s. net.)

A Text-Book of Special Pathology, for the use of Students and Practitioners, by J. Martin Beattie, M.A.(N.Z.), M.D.(Edin.), and W. E. Carnegie Dickson, M.D., B.Sc., F.R.C.P.E. With 191 illustrations and 2 coloured plates from original preparations. London: Rebman Limited. 1909. (17s. 6d. net.)

The Medical Annual, a Year Book of Treatment and Practitioner's Index. 1909. Twenty-seventh year. Bristol: John Wright & Sons, Ltd. (8s. 6d. net.)

The Causation of Sex, a New Theory of Sex based on Clinical Materials, together with chapters on the Forecasting of the Sex of the Unborn Child, and on the Determination or Production of Sex at Will, by E. Rumley Dawson, L.R.C.P. Lond., M.R.C.S. Eng. With 21 illustrations. London: H. K. Lewis. 1909. (6s. net.)

The Operations of Aural Surgery, together with those for the relief of the Intracranial Complications of Suppurative Otitis Media, by C. Ernest West, F.R.C.S., and Sydney R. Scott, M.S., F.R.C.S. With illustrations. London: H. K. Lewis. 1909. (7s. 6d. net.)

Infant Feeding, a Practical Guide to the Artificial Feeding of Infants, by J. S. Fowler, M.D., F.R.C.P. Edin. London: Henry Frowde and Hodder & Stoughton. 1909. (5s. net.)

Diseases of the Digestive Canal (Œsophagus, Stomach, Intestines), by Dr. Paul Cohnheim. From the second German edition. Edited and translated by Dudley Fulton, M.D. London: J. B. Lippincott Company. (16s. net.)

The General Characters of the Proteins, by S. V. Schryver, Ph.D., D.Sc. London: Longmans, Green & Co. 1909. (2s. 6d. net.)

Verhandlungen der Berliner medizinischen Gesellschaft aus dem Gesellschaftsjahre 1908. (Separat- Abdruck aus der Berliner Klinischen Wochenschrift.) Herausgegeben von dem Vorstande der Gesellschaft. Band XXXIX. Berlin: Druck von L. Schumacher. 1909.

GLASGOW.—METEOROLOGICAL AND VITAL STATISTICS FOR THE FOUR WEEKS ENDING 27TH MARCH, 1909.

	Week ending			
	March 6.	March 13.	March 20.	March 27.
Mean temperature,	33·9°	37·7°	39·8°	42·2°
Mean range of temperature between day and night,	17·1°	17·0°	21·1°	22·0°
Number of days on which rain fell,	2	2	3	3
Amount of rainfall, ins.	0·35	0·51	0·20	0·68
Deaths registered,	357	366	366	373
Death-rates,	21·4	21·9	21·9	22·3
Zymotic death-rates,	3·3	2·6	2·9	3·0
Pulmonary death-rates,	6·3	6·9	6·8	6·8
DEATHS—				
Under 1 year,	63	76	58	72
60 years and upwards,	83	99	100	100
DEATHS FROM—				
Small-pox,	...	...	...	...
Measles,	...	...	...	1
Scarlet fever,	3	1	2	4
Diphtheria,	4	6	6	4
Whooping-cough,	44	37	37	37
Fever,	3	1	4	2
Cerebro-spinal fever,	3	..	1	2
Diarrhœa,	...	14	8	5
Croup and laryngitis,	2	...	1	...
Bronchitis, pneumonia, and pleurisy,	85	84	95	95
CASES REPORTED—				
Small-pox,	...	...	...	...
Cerebro-spinal meningitis,	2	...	3	5
Diphtheria and membranous croup,	32	30	25	31
Erysipelas,	21	19	18	22
Scarlet fever,	64	75	78	107
Typhus fever,	...	...	...	1
Enteric fever,	14	8	13	20
Continued fever,	1	...	...	...
Puerperal fever,	1	4	4	3
Measles,*	30	50	53	60

* Measles not notifiable.

SANITARY CHAMBERS,
GLASGOW, *31st March, 1909.*

THE

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ORIGINAL ARTICLES.

THREE SOMEWHAT REMARKABLE CASES ILLUSTRATING SOME OF THE DIFFICULTIES CONNECTED WITH THE DIAGNOSIS OF ABDOMINAL DISEASE.

By A. ERNEST MAYLARD, M.B., B.S.,
Surgeon to the Victoria Infirmary, Glasgow.

It is perhaps invidious to single out any internal part of the body as possessing greater difficulties than another, for every viscus manifests certain functional or organic derangements which, so far as our present knowledge goes, are at certain stages without the pale of diagnosis. If, however, we deal with regions rather than with individual viscera, there can be but little doubt that, by reason of the number of separate organs which it contains, the abdomen, more than either the thorax or skull, presents the largest number of enigmas to solve.

Let me first briefly indicate, on the basis of anatomy and physiology, how many of these difficulties arise. Anatomically, the abdomen practically contains the whole of the gastro-intestinal canal, the last four inches of the rectum being alone excluded, and to this must be added the accessory glands, the liver with gall-bladder and bile-ducts, and the pancreas. Then there are the various suspensory and protective membranes—the mesenteries, the mesocolons, and the omenta—with their contained blood-vessels, nerves, lymphatics and lymphatic glands. There is almost the entire urinary system, and practically the whole of the reproductory apparatus in the female. To this list must be further added the spleen and the big abdominal vessels, the peritoneum with its overlying connective tissues, the lymphatic system, the lumbar portion of the spinal column and several spinal nerves which proceed from it.

Thus, then, as reviewed from the anatomical aspect, the abdomen presents a picture replete with multiplicities of its objects: and each object is an entity in itself possessing an array of pathological changes which tend only more emphatically to intensify the magnitude of the general subject of abdominal disease.

Turning to the physiology or functions of the various structures within the abdominal cavity, we encounter difficulties very little fewer in number and less in degree than those presented by the purely anatomical considerations. Each organ and tissue has its part to play in the *rôle* of the general economy, and the natural action of each and all may be so deranged by functional and organic changes as to produce innumerable perversions as perplexing as they are often misleading.

It is more particularly in connection with this latter feature that it is worth drawing especial attention to the frequently false suggestive significance of pain. It arises from the fact that so many of the abdominal viscera derive their nerve supply from practically the same source, or perhaps it would be more correct to say from a source in which the associations are so close as to make their differences all but indistinguishable. The sufferer is, therefore, unable to differentiate the seat from which the pain arises. Thus, then, for anatomical reasons, it is referred to the same place, and for physiological reasons it is not differentiated. To express these statements in more explicit and exact terms, we have the great solar plexus centrally situated, from and to which nerves pass associated with the various viscera, and the pain which is produced by over-stimulation of this central nervous system is reflected to the surface of the body in the epigastric and umbilical regions. As a result, therefore, we may, in the absence of more significant indications, be just as likely to be misled into attributing this pain to a wrong cause. We may, however, go still further, and say that not only may one centre reflect the pain of many affected parts, but that in bilaterally disposed organs disease in the one viscus may produce pain which appears as if derived from the other—such as is seen, for instance, in the reno-renal reflex, where a stone, say, in the right kidney may cause pain in the left side. It would take too much time to follow out the subject of the visceral reflexes, important as they are towards the elucidation of disease, and the subject is only referred to here to indicate the difficulties that beset the diagnostician in the matter of abdominal disease.

If, now, we pass from purely anatomical and physiological considerations to the clinical aspect of the subject, we shall soon see how greatly the difficulties are increased, for while pathology alters in one sense it often produces similarities in another, and two structures absolutely different in their normal conditions may become almost indistinguishable when pathologically affected. Thus, just to indicate a few examples, the kidney and ovary are far enough apart in all conscience, but an ovarian cystoma and a cystic kidney are sometimes indistinguishable the one from the other, and therefore not infrequently mistaken. Again, the stomach and the appendix may be said to be at the antipodes of the alimentary system, and yet the symptoms produced by the pathological perforation of the one or the other are practically identical.

These few remarks are in no sense to be considered as exhaustive on the various possible causes of difficulties in the diagnosis of abdominal disease: they are simply introductory to some remarkably interesting and instructive cases which I wish to relate, and which form a few among many that I have encountered in an experience of abdominal work which now extends over a period of several years. It would be wrong for me to say that the difficulties in these cases, as judged from the aspect of diagnosis, were insurmountable, and that by no means could a correct interpretation have been placed upon them before operation; for the knowledge we sometimes gain after operation in what at first appear to be undiagnosible cases only goes often to show the imperfectness and deficiencies of our previous investigations, and that, had we paid more attention to one particular symptom and less to another, a clearer and truer forecast of the nature of the disease might have proved possible.

But let me pass on to the description of the cases which is really the object of this paper, and of the three I propose to relate, I will first give that of a young girl whose abdominal condition as revealed at operation was peculiarly interesting. The history of it was as follows:—

Case I. — *Acute appendicitis: Strangulated ovarian cystoma.*—L. C., aged 16 years, a schoolgirl, was admitted into the Victoria Infirmary on Monday, 27th March, 1905. With the exception of an attack of enteric a year ago, she appears to have enjoyed good health. From this attack she completely recovered, and remained well until eleven days ago (Friday, 17th March), when she was compelled to stay away from school owing to a boil situated over the pubes. This discharged in the course of a few days, and she got quite well from it. But on the morning of Friday, the 24th—that is, of the following week—she was seized with severe abdominal pain, chiefly in the left iliac region. For the three days prior to admission to the infirmary she had been unable to retain anything in her stomach. As the result of an aperient the bowels moved yesterday three times, the motions being apparently normal. It was stated that her temperature two days back was 103°; yesterday evening it was 102·4°; and when admitted to the ward on the morning of the 27th it was 101°. She is stated to have sweated a great deal, to have been very thirsty, and to have passed high coloured urine.

On examination of the abdomen slight rigidity was observed all over, but more marked in the right iliac region. Marked tenderness existed in the right iliac fossa, but only slight tenderness on deep pressure in the left.

Operation.—On the same day as admission the abdomen was opened in the right iliac region. Distended, injected, and adherent coils of small intestine presented. On separating the parts clear serous fluid escaped. The appendix was sought for and found bent upon itself, adherent, and situated upon the brim of the pelvis. It was detached from its connections and removed in the usual way. Owing to the unusual amount of serous fluid which escaped, it was deemed advisable to swab out the pelvis, and in doing so a tense cyst was discovered, of a deep purple colour and about the size of a melon, lying in the middle of the pelvic fossa. Further examination, effected by enlarging the incision inwards, showed this to be an ovarian cystoma connected with the left side, which had become strangled by a complete twist of its pedicle. It was removed. The annexa on the right side appeared to be healthy.

On examination of the parts after removal, the appendix was about 8 cm. long, and sharply bent upon itself at the middle. It was patent throughout but constricted at the bend. It contained four separate concretions. The parietes were thickened and injected externally, but the mucous membranes showed no ulceration. The cystoma was a uniform globe-shaped tumour, about 15 cm. in diameter, dark purplish in colour, and perfectly smooth on the surface. Attached to the upper part and spread over it was the fimbriated extremity of a greatly swollen Fallopian tube, close to which was the ovary. The contents of the cyst was blood-stained serous fluid.

Recovery was retarded by the formation of abscesses in various parts of the body, but she ultimately got quite well.

In reviewing the case in the light of the conditions revealed at the operation, two quite distinct and separate pathological lesions existed. There were evidences of recent acute appendicitis and of recent torsion of the pedicle of an ovarian cystoma. The initial symptom was sudden severe pain felt in the right iliac region three days before operation: in this region it remained until the morning of the fourth day, when it appears to have shifted to the right side. But, nevertheless, when deep pressure was exercised in the left fossa, tenderness was elicited. Which of the two conditions eventually found did these pains really indicate? Had they reference to the onset of the appendicitis, or were they significant of the twisting of the ovarian pedicle? It is no uncommon feature in acute appendicitis to have the pain in the early stages reflected to the opposite side instead of it being felt, where it most frequently is, in the epigastric or right iliac regions. In favour still further of this initial pain being due to the appendicitis is the history of a certain amount of feverishness from which the patient suffered during the three days which her illness had lasted. The only symptom that at all suggested the possibility of some intrapelvic trouble was the sensation of tenderness evoked by deep pressure in the left iliac fossa. But even this was capable of being explained by the existence of inflammatory mischief in connection with the appendicitis. The persistent inability to keep anything in her stomach is a somewhat unusual symptom of appendicitis uncomplicated with obstruction, and fits in better with what would be more likely to happen as the result of a twisted ovarian pedicle.

It is always easy to be wise after the event, and it must be confessed that if, as it is usually right to do, an examination had been made *per rectum* or even *per vaginam*, a tumour would have been detected in the pelvic cavity; and the value of such an investigation in this particular instance, even if it had not led to a positive diagnosis, would at least have ensured a proper examination of the pelvic cavity at the operation. As it was, I fear it was more by good luck than by good knowledge that the proper treatment was adopted. Indeed, it was by accident that the ovarian cyst was discovered. It was entirely the unusual amount of clear serous fluid which escaped from the pelvic cavity more particularly, and which is so unusual in an uncomplicated case of acute appendicitis, that led to an attempt to remove some of this fluid. One's thoughts were so taken up with the fact that the case was nothing more than one of appendicitis that such a symptom as a considerable quantity of clear serous fluid in the peritoneal cavity did not have attached to it the significance it deserved. For when fluid of such a character is found in the peritoneal cavity, it generally signifies strangulation or obstruction of vessels arising from some form of internal hernia, or from such a cause as illustrated in the case under consideration, or it is significant of tuberculous peritonitis. But the outweighing effects of the appendicitis seem to have monopolised one's thoughts that other contingencies did not get the recognition they should.

What connection, if any, there existed between the torsion of the ovarian cyst and the acute appendicitis I shall not venture to discuss. It may have been purely a coincidence. But that the patient suffered from multiple abscesses during convalescence, and from a wound which also showed a septic condition, indicated a constitutional condition, I think, not unconnected with the boil which laid her up for a few days just prior to her acute seizure. In all probability there were pyogenic micro-organisms in her blood, and such a condition as that created by the operation was just such as to provide a suitable nidus for the growth and multiplication of any escaped staphyloccoci.

The following case differs from the preceding in that we have to deal only with a solitary lesion: not one complicated with the co-existence of another, separate and distinct. The type of which it is a somewhat advanced illustration is not unfrequently met with, and I have encountered two examples of thrombosis of the mesenteric vessels which were published some years ago in the *British Medical Journal* (1901, vol. ii, p. 1454). But I will describe the case before making further comments upon it. For the notes of the history of the case I am indebted to my resident assistant, Dr. M'Neil.

CASE II.—*Thrombosis of the portal vein; Acute abdominal symptoms.*—Mrs. C., aged 38 years, was admitted to the Victoria Infirmary on 15th May, 1908. She stated that for some years she had been subject to what she described as attacks "of the bile," lasting three or four days at a time, and that she suffered constantly from constipation, requiring to take laxatives. Menstruation had been regular, but was always accompanied at its commencement with pain in the lower part of the back and shooting down the legs. She had ten of a family, and, in addition, had had six miscarriages. Her present illness commenced about three weeks ago, and consisted in pains across the upper part of the abdomen. These pains were at first of a continuous burning character, situated in the lower part of the chest behind the sternum, and, in addition, there had been a severe "gripping" pain across the stomach, lasting about a quarter of an hour at a time: it was sufficiently acute to make her "double up." These particular pains came on at first every two or three hours, but for the last two days she had been rarely free for more than half an hour at a time. For the last fortnight vomiting had been very troublesome, and rendered it impossible for her to take any food. During the last two days it had become much more frequent, so that she would retch nearly every two hours. The vomit consisted of little more than a mouthful of greenish fluid. Her bowels, it was stated, had not moved for ten days, except that on two occasions enemata brought away a small quantity of material. Her own statement was also to the effect that she had not for several days passed flatus. It was said that her doctor had noticed slight jaundice three days ago.

On admission to the infirmary the patient looked acutely ill: the face was drawn in appearance, although the colour was fairly good. The tongue was coated with a dry fur: the temperature was 100° F., and the pulse 124. Her chief complaint was a "dull" constant pain over the epigastrium, accompanied with occasional spasms of a sharp pain. Inspection of the abdomen showed no marked distension and very slight abdominal respiration. Palpation revealed very distinct tenderness across the epigastrium, and to a less degree lower down in the abdomen. Rigidity was well marked all over, but this appeared to give way after the parietes seemed to get accustomed to the pressure of the hand. Percussion gave a generalised tympanitic note. Liver dulness existed in the mid line to 2 inches and in the nipple line to 3 inches. Both the heart and the lungs were auscultated, but nothing abnormal noticed.

As the bowels had not moved it was decided, first of all, to try the effects of a large enema. This appeared to be followed by some good result, and at 2 P.M. it was noted that flatus had passed, that the patient was easier and looking better, that the pulse-rate was lessened, and that the temperature was down one degree—to 99° F. At 7 P.M., however—that is, five hours later—there was a very marked change for the worse. The patient became restless, the pain more troublesome, vomiting more frequent, and the vomit for the first time showed the presence of dark blood. Previous to this it had been noted that the fluid thrown up was of a dark green colour. Her pulse also had got a good deal weaker. A second enema showed the returning material to contain blood.

Operation.—The abdomen was opened by a median incision, and immediately some blood-stained fluid escaped. Small intestine, normal in appearance, at once presented; but on searching for the cause of the trouble a livid, almost black, coil of distended small intestine was found deep in the epigastric region. More complete exposure of the affected part showed it to consist of about 40 to 45 cm. of the upper end of the jejunum, close to the duodeno-jejunal bend. The bowel was uniformly distended, glistening on its surface, of a deep purple colour, and with walls enormously thickened apparently from blood and serous extravasation. To lessen the great distension of the gut an incision was made into the bowel just beyond the affected part. Through this opening nothing but dark blood escaped or was squeezed out. On further examination the mesentery leading to the involved bowel was found to be thickened and filled with extravasated blood. It was also noticed that the omentum in one or two places was greatly thickened, and contained dark patches, as if engorged with venous blood. The nature of the condition found, and the extremely grave aspect which the patient presented at the operation, prevented anything further being attempted, and the abdomen was closed. The patient never recovered from the collapsed state after operation, and died a few hours afterwards. A *post-mortem* was made by Dr. John Anderson, to whom I am indebted for the following notes:—

"*External appearances.*—A well-developed and well-nourished but fatty body. . . . The heart is of normal size, soft and flabby in appearance, with pale and friable muscle; the chambers present healthy appearances; all the valves are of normal size, competent, and have healthy curtains. The lungs are non-adherent, congested, and œdematous; the bronchi show evidences of chronic bronchitis; the free margins are emphysematous. The stomach and intestines are distended. The upper part of the small intestine, about 3 feet in length, is deeply engorged, and its mesentery in a similar condition. The stomach when opened shows a healthy character of its mucous membrane; the mucosa of the greater part of the small intestine is deeply congested, and the epithelial surface is granular in appearance. The large bowel presents healthy appearances, but congested. The mesenteric vessels are dissected out, and a thrombotic condition of the superior mesenteric vein found. This is traced up into the vena portæ, and a similar condition is here present, and found also to follow the ramifications of the vessel in the liver, while a similar state of affairs is present on tracing backwards the splenic vein. The liver is soft and friable, pale (anæmic) and fatty in appearance, and somewhat small in size. The gall-bladder is healthy and contains fluid bile. The spleen is greatly enlarged and deeply engorged. Both kidneys are of normal size, congested, capsule slightly adherent, and on section shows slight interstitial nephritis. Adrenals healthy. Pancreas shows a similar condition of passive congestion. The bladder, uterus, and appendages present no abnormal features."

As in the last case, it will be noted that the initial symptom was pain. The past history seemed to reveal no features of associated significance, for the chronic constipation and the so-called attacks of bile from which she suffered were not apparently of a nature to claim any special attention. So that it may be said that up to the time of the appearance of the pain across the upper part of the abdomen, three weeks before her admission to the infirmary for treatment, she had practically enjoyed good health. When once, however, the pains commenced they gradually increased in frequency and severity, but remained remarkably limited to the upper abdomen or even lower thoracic region. Another symptom soon became prominent, and that persistent vomiting. The vomit was always of a bile-stained fluid; but once, just before the operation, blood was seen in it. The patient's statement was to the effect that for ten days she had neither passed flatus nor fæces; but it seems probable, from the relief given by the enemata administered shortly after she was admitted, that in reality obstruction had not been complete. Here, again, it is interesting to note that the first time blood was noticed in the motions was after the giving of the second enema; that is to say, it was only at the latest stage of the symptoms, just prior to operation, that the existence of blood, both in the vomit and in the rectal evacuations, was noticed.

I own that I felt absolutely in the dark as to the nature of the patient's illness, and in view of the apparent intestinal obstruction I ordered a rectal injection, and, as shown by the report, this seemed to be followed by some temporary benefit. In the course of about four hours, however, the patient became obviously much worse, and operation was at once decided upon. I need not follow out further the subsequent history of the case beyond saying that, while under ordinary circumstances it would have been right to have excised the gangrenous segment of bowel, the conditions in this particular instance were such as to have rendered any prolongation of the operation almost immediately fatal.

Looking back, as was done in the first case, upon the symptoms manifested, in the light of what the operation revealed, one is struck, first of all, with the correlation of the high situation of the pain and the similarly highly located segment of involved bowel. But as regards the symptomatic significance of the pain, there could be said to be nothing either in regard to its nature or its intensity that would admit of its being associated any more with the upper jejunum than with the stomach or the pancreas, if only the possible affection of some abdominal organ be taken into account. While, therefore, the pain may be said to have had a localising regional significance, it could give no clue as to the actual organ involved, or as to the particular nature of the lesion.

There is one very striking feature in the case which deserves more than a passing notice, and that concerns the passage of blood both by the bowel and by the stomach. It is usually one of the most diagnostic symptoms of thrombosis of the mesenteric vessels that blood is freely passed in the motions; indeed, it is said by some that it is possible to say whether the superior or inferior mesenteric vessels are involved by the condition of the blood passed. When "superior" vessels are blocked the blood which is passed is often decomposed; but if the "inferior" are occluded the blood passed is fresh. There would, however, seem to be very marked differences in individual cases, depending mostly upon the fact that an embolus involving one or other artery causes a different result to thrombosis of one or other vein. But to return to the case. The appearance of blood in either the motions or the vomit was never a symptom until the very last, and even then it seemed doubtful whether the blood which was noticed in the vomit and in the rectal wash-out was really from the jejunum, for at the operation the involved segment was filled with dark venous blood, none of which as revealed at the *post-mortem* seems to have found its way into the stomach or down the bowel.

I do not enter into the etiology of the condition, but from what we know of thrombosis as it affects the vessels of the mesentery, it seems likely that the condition commenced in some part of the mesenteric vein or its radicles, and extended upwards until the portal vein itself became blocked, a result which quite possibly might more frequently take place in other cases of the same nature if the patient in whom the lesion arises lived long enough.

The third case was remarkable, not so much for the actual symptoms manifested as for the striking similarity they presented to those more often associated with another disease. So clear was the history of tuberculosis in the patient and in her family, and so peculiarly suggestive of tuberculous peritonitis were the symptoms, that I must own to have entertained no other thought regarding the possible nature of the disease than that it was one of tuberculosis. Before further comment, however, I will let the history of the case tell its own tale: and to my resident assistant, Dr. C. K. Stevenson, I am indebted for most of the notes regarding it:—

Case III.—*Diffuse carcinoma of the peritoneal cavity simulating tuberculous peritonitis.*—O. P., a female, aged 40 years, was admitted to the Victoria Infirmary in October, 1908. Up to about five months ago she appeared to have had good health, although she had been somewhat anæmic and suffered from constipation, but there had been no diarrhœa at any time. She was first attracted to her illness by swelling of the abdomen. This continued to increase, with no other symptoms except severe attacks of diarrhœa and slight pain in the abdomen lasting for four days. The distension of the abdomen, however, began to cause her so much discomfort that about three months after it commenced to swell it was tapped by her doctor and a large quantity of clear serous fluid drawn off. This was repeated a fortnight later for the same reason. Her general health continued to fail. She lost her appetite, and a general sense of weakness speedily increased. One brother died from phthisis, but the other members of the family were healthy.

On admission to the infirmary she was seen to be distinctly emaciated, with pale transparent complexion, and with great distension of the abdomen. Evidences of free fluid in the peritoneal cavity were well marked, and palpation revealed a mass, about the size of the palm of the hand, in the left umbilical region. She was suffering from slight diarrhœa. The other organs appeared healthy, and the pulse and temperature were normal. At the operation, on opening the abdomen a large quantity of clear straw-coloured fluid escaped. It was seen that the peritoneal cavity was abundantly besprinkled with soft growths of various sizes: and in attempting to withdraw the mass, felt externally to the left of the umbilicus, it broke away in the hand. The pelvis was felt to contain a matted mass of growth, but no attempt was made to further deal with the case, and the abdomen was closed. Death ensued the following day, thirty-six hours after the operation. Dr. John Anderson, the infirmary pathologist, performed a *post-mortem*, and reported as follows:—

"On opening the abdomen areas of malignancy were seen studding the surface of the parietal peritoneum; the omentum and mesentery were thickened and similarly involved. The pelvic cavity was filled with a mass of adhesions and tumour tissue. On separating the parts, the ovaries were found converted into large masses of tissue of a soft fleshy character. The right ovary was about the size of an orange, but the left appeared to have been lacerated or broken into. No sign of malignancy existed in any other organ of the body. The condition appeared to be one of primary carcinoma of the ovaries, with secondary involvement of the peritoneum, mesentery, and omentum. The tumour tissue examined microscopically showed it to be of the adenoma-carcinomatous type."

In reviewing the facts of the case as revealed at the operation and the *post-mortem*, the most salient and suggestive features which it presented were first those which seemed to indicate the tuberculous nature of the disease. There was a history of one brother having died of phthisis. The patient had had attacks of obstinate diarrhœa strongly indicative of some tuberculous ulceration of the small intestine. Fluid of a clear serous character had twice been withdrawn from the peritoneal cavity, and that which escaped at the time of operating was of precisely similar nature. There was a mass felt in the upper abdomen reasonably suggestive of a curled-up, thickened, and contracted mass of tuberculous omentum, such as it is by no means uncommon to find in cases where the omentum becomes extensively involved in a general tuberculous peritonitis. The patient, who was only 40 years of age, presented a pale, transparent and emaciated appearance of the skin, such as one is accustomed to associate with advanced tuberculous infection. There was, however, one rather striking peculiarity in the midst of so many other signs significant of tuberculous disease—and that the co-existence of a normal temperature. This symptom may be of some differential significance, but when we remember that a rise of temperature in tuberculosis is often a sign of mixed infection, we may not regard its absence in any particular case opposed to the possible existence of the disease pure and simple.

Thus, then, we have before us a series of facts, or a sequence of events, so complete and perfect in their representation of tuberculosis that the discovery of carcinoma came as a surprise, if not as an actual revelation. My reason for the latter qualification arises from the fact that, so soon as the mistake in diagnosis had been made clear, I recalled a case I had once seen in consultation with my colleague, Dr. Ebenezer Duncan, which presented symptoms not unlike those of the case just reported. The case was that of a lad, aged 19, from whose abdomen, on some three or four occasions, a quantity of clear straw-coloured fluid was withdrawn. At the *post-mortem* a mass of glandular-celled carcinoma involved the cardiac end of the stomach, embracing its anterior and posterior wall. From this as a primary focus, an extensive invasion of the peritoneum had taken place. The case is fully reported and discussed in my work on *Abdominal Tuberculosis* (p. 294), and is very interesting when read in relation to the present one. An experience of two such cases should make one more guarded in considering the possibility of confusing symptoms which may have a dual significance, and lead to a closer investigation with view to differentiation.

The pathological aspect of the case is not without interest, more particularly when considered in relation to the question of etiology. It seems more than likely that the ovaries were the primary seat of the disease, and that the left had been the real source of its dissemination. As no attempt was made at the operation to interfere with the disease in the pelvis, it seems a reasonable assumption, based on the lacerated condition of the left ovary, that possibly a cyst had burst, and so scattered far and wide the malignant cells of the cystoma.

SHORT NOTES ON "PUNA" OR "SOROCHE."[1]

By JAMES W. ALLAN, M.B., C.M.

It is well known that the rarefied air of high altitudes causes disorders of the respiratory and circulatory systems. Von Tschudi, in his *Travels in Peru*, says (p. 296, *et seq.*):—

"In the heights of the Cordillera the effect of the diminished atmospheric pressure on the human frame shows itself in intolerable symptoms of weariness and an extreme difficulty of breathing. The natives call this malady the *puna* or the *soroche;* and the Spanish Creoles give it the name of *mareo* or *veta.* Ignorant of its real causes they ascribe it to the exhalations of metals, especially antimony, which is extensively used in the mining operations. The first symptoms of the veta are usually felt at the elevation of 12,600 feet above the sea. These symptoms are vertigo, dimness of sight and hearing, pains in the head, and nausea. Blood flows from the eyes, nose, and lips. Fainting fits, spitting of blood, and other dangerous symptoms usually attend severe attacks of veta. The sensations which accompany this malady somewhat resemble those of sea-sickness, and hence its Spanish name *mareo.* But sea-sickness is unaccompanied by the distressing difficulty of breathing experienced in the veta. This disorder sometimes proves fatal, and I once witnessed a case in which death was the result. Inhabitants of the coast and Europeans, who for the first time visit the lofty regions of the Cordillera, are usually attacked with this disorder. Persons in good health and of a spare habit speedily recover from it, but on plethoric and stout individuals its effects are frequently very severe. After an abode of some time in the mountainous regions, the constitution becomes inured to the rarefied atmosphere. . . . The veta is felt with great severity in some districts of the Cordillera, whilst in others, where the altitude is greater, the disorder is scarcely perceptible. Thus it would seem that the malady is not caused by diminished atmospheric pressure, but is dependent on some unknown climatic circumstances.

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[1] Read before the Glasgow Southern Medical Society, 4th February, 1909.

"The districts in which the veta prevails with greatest intensity are, for the most part, rich in the production of metals, a circumstance which has given rise to the idea that it is caused by metallic exhalation. I have already described the effect of the Puna climate on beasts of burthen. Its influence on some of the domestic animals is no less severe than on the human race. To cats it is very fatal, and at the elevation of 13,000 feet above the sea those animals cannot live. Numerous trials have been made to rear them in the villages of the upper mountains, but without effect; for after a few days' abode in those regions the animals die in frightful convulsions; but when in this state they do not attempt to bite. . . . Cats attacked in this way are called by the natives, *azorochados*, and antimony is alleged to be the cause of the distemper. Dogs are also liable to it, but it visits them less severely than cats, and with care they may be recovered."

Such is the graphic description of the Puna given by Von Tschudi. We may be prepared to admit that in the etiology of the disorder there may possibly be another factor besides high altitude, but the suggestion with regard to "the exhalations of metals" is one to be taken *ad avizandum*.

During a recent voyage to South America I heard some interesting facts about the *puna* or *soroche* from two passengers who were returning to England on board the Pacific Steam Navigation Company's ship "Lima." One of these gentlemen had experience of the malady in his own person, the other had not suffered from it himself but had considerable knowledge of it as affecting others. Neither of them belonged to the medical profession, but both were men of intelligence, and I venture to lay before you the notes which I made of their statements, in the hope that they may prove of some interest.

Mr. R. was a man of advanced middle life—and had a look of premature age about him. He had lived a good deal in South America, but when he was sent up to Oruro—a mining town in the mountains of Bolivia—he was attacked by the *soroche*, and was obliged to give up his post there and return to the coast. He came on board the "Lima" at Antofagasta, and went home to England with us. The following is an account of his illness, which I noted down as he gave it:—

Mr. R. says he came down to Antofagasta from Oruro and after staying five weeks there came on board the "Lima." On the way up to Oruro he had a seizure of *soroche* (it is also called *puna*). The seizure occurred at a high altitude—a little higher than that of Oruro (Oruro is about 13,000 feet above sea level). The symptoms were great depression and sickness. He had vomiting. The breathing was gasping in character—and there was a feeling as if he could not get breath. There was no bleeding then—that came afterwards. But Mr. R. saw a young fellow in the train with his nose bleeding. When he got to Oruro the shortness of breath gradually increased till it became quite painful. Mr. R. explains there is a cold wind every night—a slight wind, but cutting—after sundown. It comes from the snowy hills, and is very cold. It is dry and cutting. It affects the throat badly. This wind is called *soroche.*

One of the most unpleasant effects was the formation of mucus or phlegm in the throat—and this mixed with blood. This formation was accompanied by a dry, painful throat. Mr. R. was at Oruro five weeks, and was advised to leave. On going to bed instead of getting better he got worse. The throbbing of the heart was much worse at night. Slept very little while in Oruro. On leaving Oruro he experienced relief while coming down on the railway. But even after arrival in Antofagasta he still experienced some of the symptoms—especially in the throat. After coming on board the "Lima" he experienced great relief and gradual disappearance of all the symptoms. So much for Mr. R.'s personal experience of the *soroche.*

Oruro is a mining town in the mountains of Bolivia. Mr. R. tells me that he has heard of very serious and even fatal results from the *soroche.* Persons, quite a number, have died in or near Oruro from this affection. Persons who had been ordered down to the coast on account of the malady died on the way down or shortly after arrival at the coast. These were advanced cases—turned into acute pneumonia.

He knew a Mr. J. P., who had resided for a long time (say 25 years) at or near Oruro. He was a mining manager (tin mines). He boasted to Mr. R. that he had never been affected by the *soroche.* He had married and had children. A very few days (he thinks about 10) afterwards he heard that Mr. P. had been taken suddenly ill with *soroche.*

The Doctor (S——) saw him, and ordered him down immediately to the coast. He was sent in a special railway carriage fitted up with a bed. The doctor was very doubtful if he would arrive at the coast. Mr. R. saw him a few weeks afterwards at Antofagasta, and he appeared to have almost recovered. But he complained of weakness, and told Mr. R. that on no account could he go back to the mines. Mr. R. subsequently saw him at Valparaiso, and he was then about to see a specialist. He was undecided as to whether he should take a voyage to England or not. He is a man of about 58 years of age.

Mr. R. met many men in Bolivia who never had a touch of *soroche*. One young man—an Australian—died at the Collahuasi Copper Mines, 17,000 feet high. He was taken ill on the railway journey up. He died three days after arrival of *soroche*. When Mr. R. was on his journey down he met a man who had to suspend his journey to the coast, being recalled by telegram, which announced that his brother had a serious attack of *soroche* at the Collahuasi Mines. Mr. R. was also told by a Mr. H., manager of the L. Mines (copper)—a gentleman receiving a very high salary—that he could not remain there much longer, as he found the frequent attacks of *soroche* too trying, and were affecting his hitherto strong constitution.

Horses or mules imported into the district are almost useless, as they invariably suffer. This does not apply so much to animals born in the mountainous districts. Llamas are very extensively used as beasts of light burden in Oruro and districts. They do not suffer.

The other passenger, Mr. H., was a young gentleman, small in figure and slight in build, but he had undergone considerable hardship in the high regions without injury, and he escaped the *puna*. My notes run as follows:—

Mr. H., a passenger on the "Lima," was resident at a place called Uyuni, Bolivia, 12,000 feet above sea level. He was engaged then in connection with the railway (Antofagasta and Bolivia Railway Co.). He never contracted the *puna*, but he saw many cases. He says it affects people chiefly with a weak heart. He knew of several people dying of *puna*—one of them in less than six hours. It starts with headache—that is the first sign. Gasping, panting breathing. Often bleed from the nose. Gradually become insensible. Then, if not taken down to a lower level, usually die. The only remedy for bad cases of *puna* is to take them down to a lower level.

He knew of a case—a Chilian (case referred to above as dying in six hours). He was working in Calama—about 5,000 feet above sea level, more or less—on the railway, and was transferred to San Pedro—about 10,000 feet above sea level—and a six hours' journey from Calama. He contracted *puna* on the journey, and, soon after arrival, was insensible. And although put on a special hand-car, as used by platelayers, and taken back to Calama as quickly as possible, he died before reaching Calama. Mr. H. was at Uyuni eight months, and never had any symptoms of *puna*. When he was transferred to Antofagasta, three Englishmen were sent in succession to take his place. None of the three were able to live there. They had to return to Antofagasta.

Mr. H. is of opinion that the *puna* does not depend alone upon the elevation. Uyuni stands upon an elevated plain, with a salt lake to one side of it, and the wind sweeps across this plain. He thinks this has some effect. This wind is a cold wind, coming from the snow-clad mountains and across the lake.

A later note records that "Mr. H. seems of opinion that some persons bring the *puna* on themselves by nervous apprehension."

I have ventured to submit these notes to the Society in the hope that they may prove of some interest.

MACROSTOMA, ASSOCIATED WITH CLEFT OF SOFT PALATE.

BY G. H. EDINGTON, M.D., C.M., F.F.P.S.G.,

Professor of Surgery, Anderson's College Medical School; Assistant Surgeon
to Western Infirmary; and Extra Honorary Surgeon to
Royal Hospital for Sick Children, Glasgow.

THE condition known as macrostoma or persistent mandibular fissure is mentioned in works dealing with developmental abnormalities of the face, but it is of rare occurrence. The following are the particulars of a case which came under my notice some time ago.

A female infant, aged 14 months, a patient of Dr. Christie, of Carradale, was brought to see me on 23rd August, 1907, on account of a fissure extending across the right cheek from the mouth towards the tragus. Dr. Christie stated that while at birth the fissure extended up to the ear, it had since receded. The mother of the infant said that there seemed to be at first no cheek, but subsequently the cheek had developed to some extent.

Family history.—The patient is an only child. There is no history of malformations in any of the relatives.

On inspection, the face has a lop-sided appearance. The mouth is pulled over to the right, and from the normal situation of the angle on this side a cleft opening into the buccal cavity extends up towards the ear. The actual fissure terminates about 1 inch (2·5 cm.) in front of the tragus, but its line is continued by a deep furrow which extends up to the notch between the tragus and the helix. This furrow resembles a depressed adherent scar.

On examination of the fissure, the buccal mucous membrane is seen joining the skin of the cheek in both upper and lower edges of the cleft, and at the posterior end of the cleft the velum palati is visible. The skin in this neighbourhood is somewhat chafed. Anteriorly the edges of the cleft are directly continuous with upper and lower lip, there being no irregularity or papilla to mark the extremity of the lip proper.

On viewing the face in profile there seems to be considerable lack of development of the mandible, so that the chin is distinctly less prominent than normal. Viewed from in front, there would seem to be deficient development of the right mandible, as the median incisors (the only teeth which have erupted in the lower jaw) are well to the right and clear of the corresponding teeth in the upper jaw. Both median and lateral incisors are erupted in the upper jaw. These teeth are displaced a little to the right. The concha of the right ear is wider and shallower than its fellow; otherwise both ears are normally shaped. There is no evidence of branchial fistula or of any malformation in body or limbs.

The child is very fretful, and cries a good deal on being examined. There is no paralysis of the facial muscles above the cleft, and during crying the right half of the lower lip is pulled downwards.

Chloroform having been administered and the mouth opened with the gag, the soft palate is found to be cleft in its median line. The right half of the velum and uvula are attached to the buccal mucous membrane of the upper margin of the mandibular fissure, through which they project externally near its posterior extremity. On pulling forward the tongue the palato-glossal fold stands out, its upper attachment being *behind* the velum. The pterygoid process is easily felt on the left side, but not at all on the right. Behind the velum, however, is a prominent bony boss, apparently connected with the base of the skull. The temporo-mandibular articulation is not palpable on either side. There is no unnatural mobility on the left side. There is little apparent difference between the alveolar processes of the right and left superior maxillæ. Stensen's duct cannot be located.

Operation (28th August).—The right side of the velum was detached by scissors from the buccal mucosa. The soft palate was elevated on both sides from the hard palate, the cleft rawed and sutured in the usual way. The edges of the mandibular fissure were rawed, a flap of prolabium of lower lip being turned up and fitted into a corresponding space cut in the upper lip, so as to have continuous mucous membrane at the new-formed angle of the mouth. The rawed edges of the mandibular fissure were brought together by horsehair sutures, and the wound supported by a broad mattress suture in the middle of its extent. In the afternoon of the same day the child was pale and restless: there had been some oozing of blood from the wound: and the temperature had risen to 103° F. At 10 P.M. the temperature was 104° F., and at 2 A.M. on 29th August death took place without the patient having rallied from the shock of the operation.

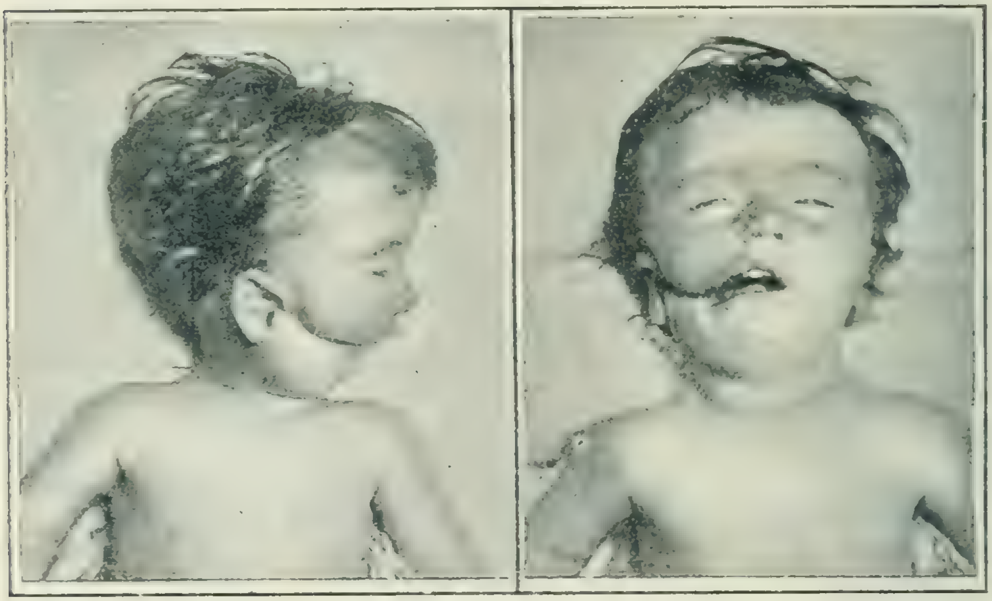


Fig. 1. Fig. 2.

Fig. 1 shows the fissure and its continuation upwards as a furrow; also the deficiency of growth in chin. In Fig. 2 the asymmetry of the face is shown; the space between the upper central incisors is to right of columna nasi. (*From photographs taken while child was under anæsthetic.*)

Apart from the unfortunate result of the operation, this case presents several features of interest:—

(1) *Embryology.*—In the first place, the malformation is a clinical illustration of partial defect of the process of development of the face. The growth forward of the maxillary and mandibular processes results in a cleft—the mandibular fissure—which at first stretches almost from ear to ear. Subsequently the lateral portions are closed, and in the normal fœtus the mouth is all that remains of the fissure. The external auditory meatus is not involved, because it is developed from the first post-oral cleft.

(2) *The furrow extending between the cleft and the anterior edge of the external ear* was probably so short at time of birth that it was not noticed. The subsequent recession of the cleft from the ear has been due, I think, not to a post-natal attempt on the part of nature to close the defect by union of its edges, but to growth of what tissues there are in the situation of the furrow. The furrow marks an incomplete closure of the extremity of the fissure, comparable to what is occasionally seen in the various forms of incomplete hare-lip.

(3) *The defective growth of the mandible* is very well seen in Fig. 1, which shows the want of development in the chin. The abnormal relationship of the incisors of the upper and lower jaws may indicate special deficiency in the right mandible. This deficiency is not exactly comparable with what is seen in cases of cleft of the hard palate, because in the latter case the bones themselves are involved in the defective union. That there is some relationship, however, between the development of the soft parts and the bones is evident from the absence in the present case of a properly formed pterygoid process.

(4) *The abnormal arrangement of the velum and palato-glossal fold* indicates implication of the pharynx. The palato-glossus muscle, which lies in the fold, is developed in connection with the hyoid arch, and its implication may have some bearing on the association sometimes obtaining between macrostoma and branchial fistula.

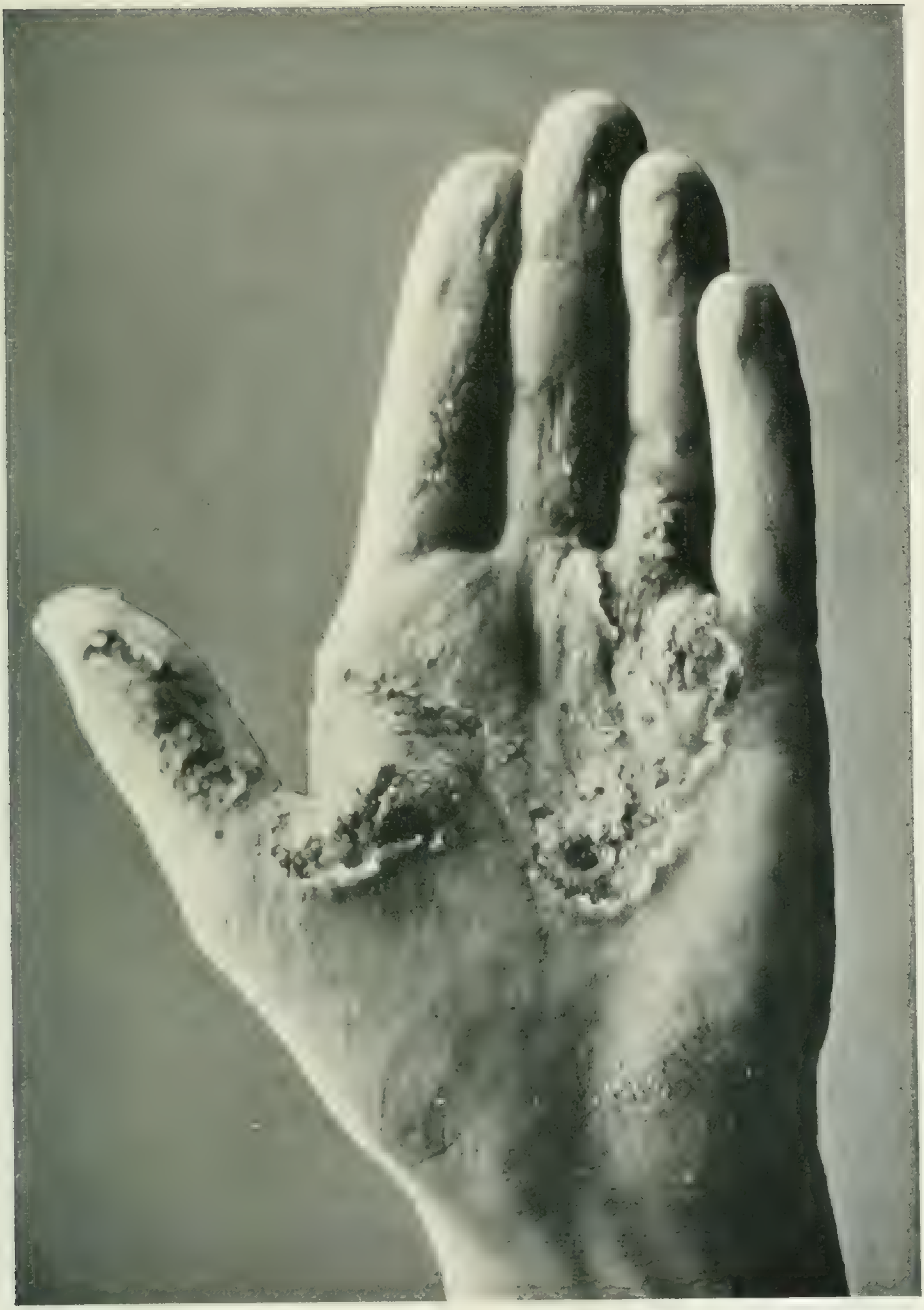
(5) *The nervous and vascular supply of the face* could not, of course, be determined. That there was no interruption of the facial nerve is shown by the absence of paralysis of the upper facial muscles: but the upper branches of the nerve must have pursued a course different from the normal. The vascular supply of the upper part of the cheek was quite efficient, and was probably derived from the internal maxillary and ophthalmic arteries.

A CASE OF DERMATITIS REPENS.

By J. WYLLIE NICOL, M.B.,
Acting Physician, Glasgow Hospital for Skin Diseases.

CASES coming into this group are certainly not common. The condition was first described by Crocker in 1888. He defined it as a spreading dermatitis usually following injuries, and probably neuritic, commencing almost exclusively in the upper extremities. The cases described since then have varied greatly in their extent and rate of progress. In some the eruption has been confined to the hand, in others it has spread right up the arm and on to the trunk. As a rule, the progress has been slow, but occasionally it has been rapid. It is usually very persistent, lasting months and even a year. In 1897 Hallopeau described a series of cases under the title "Acrodermatites continués," showing features in common with dermatitis repens, but characterised by a marked tendency to recurrences and to extension by the appearance of new foci, while dermatitis repens spreads by continuous extension. In Hallopeau's opinion, both conditions are due to organisms. The staphylococcus albus was found in some of his cases. The following is an account of a case which came under my observation recently:—

The patient, J. G., a grocer, aged 25 years, unmarried, was sent to the Hospital for Skin Diseases on 8th January, 1909, by Dr. James Gilchrist, on account of an obstinate and slowly spreading eruption on the left hand. About May, 1908, the patient noticed that an area of skin, about 1¼ inch in diameter, on the palm of the hand had become thickened, hard, and dry. It was situated opposite the bases of the first and second fingers. There was sometimes slight itching, but no other discomfort. He did not treat it, and it remained in the same condition till the middle of September. Then a fissure formed in the centre of the patch, and persisted. One day at the beginning of October he suddenly felt a very sharp pain at a point beside this fissure. The pain only lasted for a few minutes. On looking at the hand he saw that a red raised spot with a small blister in its centre had appeared. This blister rapidly increased to the size of a lentil (the patient, who is a very intelligent man, says that it did so within an hour), and burst, discharging a yellowish fluid.



Dr. J. Wyllie Nicol's Case of Dermatitis Repens.

During the following six days about ten other small blisters appeared in exactly the same sudden way round the first one. He had no shivering, headache, or feeling of sickness at this time or later. The blisters coalesced and formed a raw area exuding a thickish yellow discharge. Although antiseptic ointments were applied, the area very slowly but steadily increased by peripheral extension. In three months it extended a short distance on to the palmar surface of the first, second, and third fingers, round on to the palmar surface of the thumb, reaching the nail, and well across the palm. In the meantime the part first affected began to heal.

At this stage, on 8th January, the patient came under observation. The photograph, taken six days later, shows the distribution. The palm at the bases of the first and second fingers was covered by fine new epithelium, but elsewhere the surface was red and raw, and exuded sero-pus. There was practically no depression and not much elevation due to infiltration, except to a moderate degree on the thumb from the ball to the nail. There was little crusting, as he had been applying ointment. Here and there on the raw surface were a few small blebs. The striking feature was the edge. All the way round, except on the fingers and thumb, the epidermis was undermined for a distance of about a quarter of an inch, its margin was ragged, and beneath it there was a layer of white pus. On the fingers and thumb the undermining was less, but quite distinct. The white border thus formed, sharply demarcated the disease all round. The healthy skin beyond seemed quite normal, and was free from redness or swelling. There were no vesico-papules such as might have been expected if the condition had been an eczema. The patient stated that the spread had taken place entirely by extension of the margin, and that at no time had blisters appeared outside it. Sometimes the hand had felt hot and burning, but he had not had much pain. He was not feverish. The glands were not enlarged or tender. He was asked to leave the hand untreated and to cover it with plain dry lint for a few days. The exudation dried into crusts, and slight extension was noticed towards the right on the palm, but otherwise no change was noted. Just before the hand was photographed the crusts were partly removed by soaking for ten minutes. This removed the pus from under the edge, and when the parts were dried with lint it curled up in places as is shown in the photograph.

Cultures were made on two occasions, the needles being applied to points well below the undermined edge. In every culture a pure growth of the staphylococcus aureus was obtained. Pus and scrapings from the edge were examined for ringworm, but no trace was found. The blood was found to be normal.

A careful enquiry was made into the patient's family and personal history and his general health, the belief of Crocker that this type of dermatitis begins as a peripheral neuritis being kept in view. The following points were noted:—His father died at the age of 70, of bronchitis; his mother is alive and well. His only brother died at the age of 35, of enteric fever: two sisters died in infancy, one at the age of 6, of bronchitis, and one at 19, of enteric fever. His other four sisters are alive and well. Patient is short in stature and well nourished. There is an unusually strong development of hair on his body and ears for his age. He had always enjoyed good health till three years ago. He then had a good deal of worry, with loss of sleep for four months. Nine months later he had a sharp attack of influenza, and was unfit for work for several weeks. Since then he has had occasional attacks of slight indigestion. He has defective teeth, and his breath is often offensive. His bowels are usually regular. The lungs and heart were normal, but his pulse-rate was found to vary between 70 and 80. The urine showed a copious deposit of phosphates. He seemed to be of rather a nervous temperament, but was not conscious of this himself unless when much worried. He always slept well and was free from headaches. His eyes gave him no trouble. No evidence of neuritis was made out. Since 1902 he had had seborrhœa of the scalp causing marked alopecia. The skin otherwise was normal. There was no history of syphilis.

Treatment was commenced on the 16th of January. It consisted in swabbing thoroughly beneath the edge with a 1 in 400 perchloride of mercury lotion and steeping the hand in 1 in 3,000; then the hand was thoroughly cleansed in warm water daily, and moist boracic lint applied night and morning. After four days the swabbing under the edge was repeated and the dressings continued. By the beginning of February all the parts, except round the thumb-nail, were almost healed, For a time it looked as if the nail would separate, but it did not do so. The hand was quite well on 26th February, and on 20th April was still sound, being free from thickening or scarring.

A review of the facts suggests that the hard dry skin on the palm was due to seborrhœa; that infection took place through the fissure: that while the staphylococcus aureus may not have been the original organism present, it was responsible latterly for the spread. There was no definite evidence that the nervous system played an important part, but the facts that he seemed to be of a nervous temperament, that seborrhœa of the hands is common in nervous subjects, and that the initial blisters were extremely rapid in development, suggest that it may have been a factor in the causation. The continuous extension, with healing in the older parts, proves that after the onset microbic invasion was the chief element. The disappearance of the disease under antiseptic treatment confirms this.

THE TREATMENT OF PHTHISIS BY THE INTRAVENOUS INJECTION OF IODOFORM.

BY JOHN BAIN, M.B., C.M.GLASG., SOUTH SHIELDS.

As at present constituted, the sanatorium is for the rich, or at least for those people who can afford to pay a minimum fee of a few shillings per week, and for those cases occurring among the very indigent who come under the cognisance of the inspector of poor. For the vast majority of the working classes, however, upon whom the disease presses most heavily, the sanatorium and its methods constitute a name and a name only, and many a sufferer goes to his grave regretting his inability to pay for a form of treatment which he imagines would have saved his life had he been able to indulge in such a luxury.

The object of the writer, in recording the following short list of successful cases, is to show what can be done for working people in their own homes, and under very unpromising surroundings, by the intravenous injection of iodoform.

CASE I.—Mrs. N., æt. 30, v-para. Family history unimportant: always a thin, spare woman, and never very robust. For three winters had been suffering from a severe attack of bronchitis; had been going downhill steadily for three months before treatment was begun. Consolidation of the base of the left lung, diminution of the respiratory murmur, and a few moist râles; night sweats, irritable cough, profuse expectoration, total loss of appetite. Tubercle bacilli in abundance found in the sputum.

This woman was much emaciated when the injections were commenced, and so weak that when she got out of bed she had to hold on to a chair for support. She herself said she had gone to bed for the last time, and her relatives were of the same opinion. To make things worse for her, her husband had to have his right arm amputated at the shoulder, as the result of an accident, just before she came under my care, so that during the greater part of the treatment she was just living on the charity of her friends. When she began to improve she was compelled to leave her bed to do what she could towards the management of her house, and before the injections were left off she was doing all her own work. This woman began to improve at once, and at the end of ten days stated that her appetite was much better and that she felt stronger than she had done for months past. In spite of the fact that in her reduced circumstances her dietary was no means an ideal one, she rapidly improved, put on flesh, and at the end of five months was looking the picture of health. Her lung condition cleared up splendidly; except for a slight diminution of the breath sounds at the left base the affected lung was normal to auscultation and percussion. Tubercle bacilli, which were easily detected in the sputum at the beginning of treatment, were absent when the very scanty expectoration was examined at the end of treatment. She gained 20 lb. in weight, and her friends now assert that she is looking better than she has ever done previously. She was five months under my care, and received sixty injections. It is sixteen months since this patient was under treament, and during that time she has not had a day's illness.

Case II.—A. B., æt. 42, married, tailor to trade. Family history unimportant. Had indifferent health for at least a year before putting himself under my care, and during the last four months of that time had an irritable cough, especially at night. Had lost flesh to the extent of 6 lb.: appetite very poor. Phthisis of the right apex: lung just beginning to break down. Tubercle bacilli found in the sputum, but not numerous. Received eighty-five injections; nine months under treatment: gained 12 lb. in weight.

This man made a very good recovery under very trying circumstances, having to work hard at his trade during the whole time he was under treatment, and often on a very insufficient diet. He dated his ill-health from an attack of influenza, which completely broke him down and kept him from business so long that he was compelled to become bankrupt. Probably it was owing to the adverse conditions under which he was labouring that he did not improve very fast and put on the amount of flesh that my other patients gained during the course of treatment. However, by the end of eight months he was looking very well, and many of his acquaintances who had not seen him for some time were surprised at the look of health on his face. He was always a spare man, and never carried any extra flesh; this may also account for the fact that he only gained less than a stone in weight while under my care. This man has worked steadily at his employment since the injections were left off, now two years past, and has never been laid off a single day through illness. He has no cough, and states that he considers himself in perfect health. Twelve months from the time of beginning the treatment his sputum was examined and did not contain any tubercle bacilli.

Case III.—H. G., æt. 41, married; powerfully built man, 6 feet 1 inch in height; waterman to trade. Family history good. Illness began with severe cold, contracted six months before coming under treatment. Had lost one and a half stone in weight; night sweats; severe cough, accompanied by considerable expectoration, in which tubercle bacilli were found. Consolidation of the left apex, but no moist sounds. Under treatment (six months) received sixty-eight injections; gained 2 stones in weight by the time he resumed work.

This man also did very well under rather trying circumstances. He had ten children, the youngest born a month after he placed himself under my care. Being in no provident clubs or friendly societies, he was practically dependent on the charity of a brother for support. He lived in a two-roomed house, one apartment of which was occupied by himself, his wife, and three of the children as a bedroom. Even though the window was kept open at night, one can understand that the atmosphere of the room, with so many occupants, was none of the best for a consumptive patient.

After being two months under treatment, he contracted an attack of influenza, during which he lost flesh to the extent of 8 lb. The injections were, however, persevered in, and in a few weeks he regained all the leeway he had lost, and continued to put on flesh during the remainder of the time he was under my care. This man has been steadily at work for the last twenty months, and has during that time never required to consult a medical man. He has no cough or shortness of breath, and states that he can do a hard day's work as well as any of his companions who have never suffered from lung trouble. The apex of the lung has completely cleared up, there being now no difference on physical examination between the two sides of the chest.

CASE IV.—J. W., æt. 30, married; joiner to trade. Family history—no history of phthisis among his relations, but one brother suffers from glycosuria. Never a very robust man; had irritable cough for three months before the onset of his illness: had also lost flesh to some extent, and his appetite had been very poor. Illness began with a typical attack of pneumonic phthisis, which left the right side much damaged. Patient was under treatment eleven months. received ninety-eight injections, and gained 20 lb. in weight.

This man did not receive any injections until he had been ill six weeks, and was then practically reduced to a skeleton. It was only to have a clear conscience that I had done everything possible for my patient that I decided to give him a few injections, never dreaming that he would respond to the slightest extent to my efforts on his behalf. To my great surprise and pleasure he began to show signs of improvement, and in fourteen days his appetite had returned, and it was apparent even to his friends that his general condition was also much better. This man made slow but steady progress to recovery, and in five months' time was able to get out in the fresh air, and when the weather was favourable to take short walks into the country.

He was anxious to return to work at once, but, as he had several cavities in his lung, I insisted he should confine himself to walking exercise until these had considerably diminished in size. After being off work for eleven months, he resumed his occupation, that of a sawyer in a shipyard, last December, and has worked steadily since.

An examination of the right side of this man's chest in front reveals only too plainly the havoc which the pneumonic phthisis has wrought in it. Auscultation reveals well-marked cavernous breathing all over the right apex: in fact, the breath sounds suggest that the apex is one large cavity. However. there are no moist sounds, and the lesion in the lung is evidently soundly healed. He looks healthier now than before his illness, and I am sure that anyone who has not seen the man since the treatment was begun would fail to recognise him again. He has now neither cough nor spit, but occasionally complains of pain over the right side of his chest, which I attribute to the contraction of adhesions.

CASE V.—J. T., æt. 28, married; hairdresser. Family history unimportant. Had his right leg amputated at the age of 12 for tuberculosis of the knee-joint. Troubled with cough and spit for four months before coming under my care. Extensive lesion of the base of the right lung, with abundant moist sounds. Tubercle bacilli easily found in the sputum. Seven months under treatment, and received seventy-two injections, and gained 18 lb. in weight.

The remarkable thing about this man was the high temperature he was running when he put himself under my treatment. The first time I saw him it was 104° F., and though he was immediately put to bed, it was a full week ere his temperature at 4 o'clock in the afternoon fell to 102° F., and it was four months before his temperature finally reached normal. This man was a very manageable patient, and kept his bed from the beginning of December until the end of March. He also religiously kept his bedroom window open all the winter, unless the weather was very stormy, and so got as much fresh air as a patient can get in town during that inclement season of the year. The lesion in the lung healed up rapidly towards the end of five months of treatment, and when he went to see a consulting physician two months later, the latter could find very little wrong with his chest, and suggested a few weeks in the country as being quite sufficient to put him all right. It is now two years past in June since this man was under my care, and since that time he has been constantly employed in a bird-shop, probably not quite so unhealthy an occupation as that of a hairdresser, but by no means an ideal occupation for a man who has suffered from phthisis. Still, in spite of his indoor occupation, he continues to enjoy good health, and has not had the slightest trouble with his chest since he ceased receiving the injections.

CASE VI.—Mrs. T., æt. 24, ii-para. Family history very bad. Two sisters and one brother died of phthisis, and three other members of the family died of tubercular meningitis in infancy. Illness began, four months after her confinement, with shortness of breath, loss of appetite, and an irritable cough. Consolidation of the base of the left lung, but no moist sounds. Tubercle bacilli found in the sputum after repeated examination. Patient was under treatment six months, received sixty-six injections, and gained 2 stones in weight.

The striking facts in connection with this woman's case are (1) her wretched family history: (2) her recovery under the intravenous injection of iodoform, while the other members of her family, who suffered from phthisis, had all died under the treatment adopted for their relief.

This woman, the wife of a clerk, was a very obedient patient, and took a great interest in her own case, keeping a record of her morning and afternoon temperature during the whole course of her illness. The afternoon temperature was 101° F. at the beginning of her illness, but the space of three months went past before it finally reached normal, and even then the slightest excitement was sufficient to send it up to 99°, or even a fraction of a degree higher. By the time she got out of bed she was looking extremely well, having put on flesh to the extent of 2 stones: in fact, her friends who had not seen her since the beginning of her illness were quite astonished to see how stout she was. Her corpulency was, however, accompanied by considerable shortness of breath, which became very apparent when she attempted to go up an incline even at a slow pace. However, a stay of a few weeks in the country, where she daily took plenty of walking exercise, did her a world of good, and now she can wheel her baby in its mail-cart about the streets without feeling the least inconvenience from her breathing. She has at present neither cough nor spit, and her lung condition has quite cleared up, the only difference to be detected between the two sides being a very slight diminution of the respiratory murmur over the left base.

The one factor common to all these cases is the intravenous injection of iodoform, to which I attribute, and attribute alone, the recovery of these patients. It is quite true that their bedroom windows were kept open, but I am sure that on fresh air alone and the inadequate diet on which at least four of these patients had to subsist, if they had had no other treatment, they would not have made the rapid recoveries I have been able to record.

The case of the joiner, who had a typical attack of pneumonic phthisis, is, to my mind, particularly instructive. He was going rapidly downhill, getting thinner every day, until the injections were commenced, but by the end of a fortnight, or after receiving eight injections, there was a change for the better, which was never interrupted during the whole subsequent course of his illness. These patients never had any cough mixture from me. If their cough was irritable at night, I advised them to take a little glycerine flavoured with whisky or lemon juice, which, I explained to them, was much less liable to upset their stomachs than cough sedatives, all of which to be of any use must contain a considerable quantity of some preparation of opium.

The amount of iodoform which they all received was, on an average, ½ grain every second day, and towards the end of treatment every third day, except at the first injection, when it is advisable only to give ¼ grain, or 5 minims of the ethereal solution of the drug, to see how the patient is going to stand it. Some patients cough dreadfully at first, and even after they have got accustomed to the injections they are unable to stand more than 10 minims as a maximum. Case III, though a powerfully-built man, never could stand more than 10 minims without a severe paroxysm of coughing, followed later by vomiting, while Case IV, though a sparely-built man, could stand 15 minims without the least inconvenience. I have noticed that on the day following an injection of 15 minims, the patient sometimes complains of severe headache, and aching all over the body, particularly in the lumbar region, which might lead one to suspect the onset of influenza did these symptoms not all clear up in twenty-four hours after their onset.

Excessive coughing after an injection is, I think, a factor in the case which should lead us to be careful regarding our prognosis. My unsuccessful cases have shown this symptom to a marked degree, and whenever I have noticed this to persist I have formed an unfavourable view of the case, which its subsequent course has fully confirmed.

The solution of iodoform which was used was prepared according to the formula of Dr. Dewar, who has had the honour of adding so materially to our knowledge of the successful treatment of phthisis. It is as follows:—

℞.—Liquid paraffin, ... 40 per cent.
Anæsthetic ether, ... ad. ℥ii.—M.

In every 20 minims dissolve 1 grain iodoform: thus 10 minims contains ½ grain of the drug.

It is quite true that these cases are at present undergoing the test of time, and that one cannot yet say that the cure will be permanent. However, if one were to judge by the look of robust health on the faces of these patients, and their own statements that their health has never been better, one would be inclined to say that they will never again be troubled with pulmonary tuberculosis. In iodoform, I am convinced, we have a drug, at the present time, the most powerful antidote we have got to the ravages of the tubercle bacillus in the lungs.

It is not successful in every case, any more than the sanatorium, which cannot cure every case that undergoes the fresh air treatment, but I am certain that those patients who fail to respond to the intravenous injection of iodoform need expect absolutely no benefit from a sojourn in a sanatorium. Case IV, practically skin and bone when I took him in hand, would have been regarded as utterly hopeless by the vast majority of sanatorium physicians, and yet under the influence of the intravenous injection of iodoform he gradually recovered, and is now doing the same work as he performed before he took ill, surely a striking tribute to the efficacy of the intravenous injection of iodoform in pulmonary tuberculosis.

In conclusion, I beg to express my best thanks to Dr. Dewar for his courtesy in replying to my enquiries on this subject, and for many suggestions as to the treatment of these cases.[1]

The technique of the intravenous injection is as follows:—A handkerchief is bound firmly round the upper arm, just above the elbow, and the ends are twisted and then given to the patient to hold. The object of doing so is to prevent any movement of the arm in undoing the ends of the handkerchief after the needle has entered the vein. To make the veins stand out, the patient is directed to rapidly move the fore-arm up and down, though in many male patients the application of the handkerchief to the arm is quite sufficient in itself to make the veins stand out prominently. The patient now rests the back of the hand on the injector's knee, while the latter grasps the arm sufficiently firmly to steady the swollen vein and prevent it moving during the introduction of the needle.

The needle of the hypodermic syringe is introduced slowly with a circular motion, using as little force as possible, its entrance into the vein being indicated to the injector by a feeling of the needle having ceased to meet with any resistance in its advance. The injector should not, however, at once push home the piston of his syringe, but should wait until he sees blood appear in the barrel, and if it does not come he should gently withdraw the piston to a very slight extent, when he will generally be gratified by seeing it appear at once. The object of doing so is to be absolutely certain that the needle has entered the vein, and no inexperienced injector should ever dare to push home the piston of his syringe without ascertaining by this simple precaution that his needle has entered the lumen of a vein. Beyond the unpleasantness of the needle piercing the skin, a correctly given intravenous injection causes no pain, but should the injector be so unfortunate as to miss the vein, and inject the contents of his syringe into the subcutaneous tissues, the patient will at once experience the most agonising pain. Dr. Dewar compares it to the sting of a wasp, but one of my patients went even farther, and likened it to having a quantity of molten lead injected under the skin. The terrible pain of a misplaced injection is one of the drawbacks of this method of treating phthisis, still, it has been my experience that once a patient has begun to recover, he will bravely endure the pain, and bare the other arm for a second injection. If, however, the medical attendant should have the ill luck to miss the vein at the first injection of a new patient, he may be absolutely certain that that sufferer will go to his grave without further intravenous treatment.

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[1] LITERATURE.

"A Plea for the Recognition of the Treatment of Disease by Intravenous Injections, with a Theory as to the Action of Iodoform in Phthisis," read before the Edinburgh Medico-Chirurgical Society, 3rd May, 1904.

"Further Report on the Treatment of Phthisis by Iodoform Injection," *British Medical Journal*, 14th January, 1905.

After the injector sees the blood in the syringe he asks the patient to let go the twisted ends of the handkerchief, and then slowly gives the injection. If it is done rapidly the patient often complains of a feeling of having been struck a severe blow on the chest or shoulder. I am at a loss to assign a cause for this sensation, but my patients have complained of it so often that I am convinced they do experience such a feeling, and always warn a new patient to feel no alarm should he be similarly affected.

Dr. Dewar mentions breathlessness as being a common sequela of an intravenous injection, coming on shortly after the operation, and sometimes persisting for several days. I cannot say that I have ever observed this symptom among my patients. This, however, may be due to the fact that I have never used the saturated solution alone, but always the ether, paraffin, and iodoform preparation.

The vein into which I usually inject is the median basilic of either arm, but any superficial vein of the fore-arm is equally serviceable, provided it can be made to swell sufficiently to admit easily the needle of a hypodermic syringe. Five years ago I saved the life of of a young woman by injecting a solution of formalin (1 in 2000) into the veins on the back of her hands, and on several occasions since then I have found the same veins very useful when those higher up the arm were too deeply embedded among the subcutaneous fat to be easily reached.

Dr. Dewar states that the radial and ulnar veins have been frequently used by him, and that he has never found any difficulty in inserting his needle into them. I would not, however, advise any inexperienced injector to follow his example, but rather counsel him to confine his attention to the median basilic and the other superficial veins of the fore-arm.

It looks quite easy to give an intravenous injection, but all the same it requires some little practice to acquire that degree of skill which will enable the medical attendant to be quite confident that he will enter the lumen of the vein every time he tries to give an injection. On withdrawal of the needle, in case there should be any bleeding, I always reapply the handkerchief, though much less tightly than before, over the vein that has been used, and keep it on for half an hour.

RHEUMATOID ARTHRITIS ILLUSTRATED.

By W. F. SOMERVILLE, M.A., B.Sc., M.D.,
Radiographer, Western Infirmary, Glasgow.

The accompanying three prints afford excellent illustrations of the deformity that occurs in advanced cases of rheumatoid arthritis. The patient is a maiden lady, of over 40 years of age, who at the age of 16 began to suffer from rheumatic pains in the joints. Later on the symptoms of rheumatoid arthritis became evident. There has been no history of acute rheumatism, and there is no heart complication. Most of the joints of the body are affected, and it is with the greatest difficulty that locomotion is possible. Much pain is experienced more or less in all the joints.

Fig. 1 is a skiagram of the right hand pronated, the tube being below and the plate resting on the back of the hand.

Fig. 2 shows the left hand supinated, as far as the stiffness

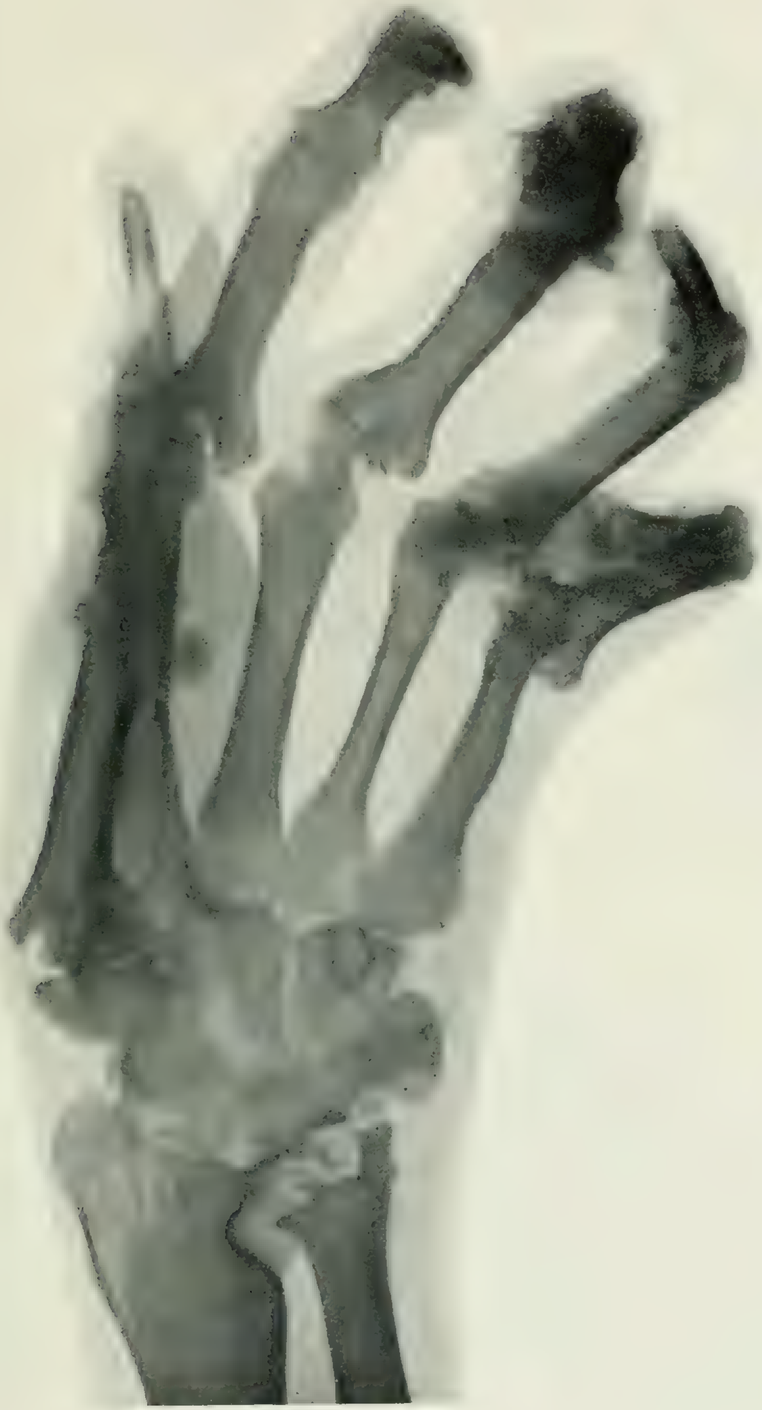


FIG. 1.

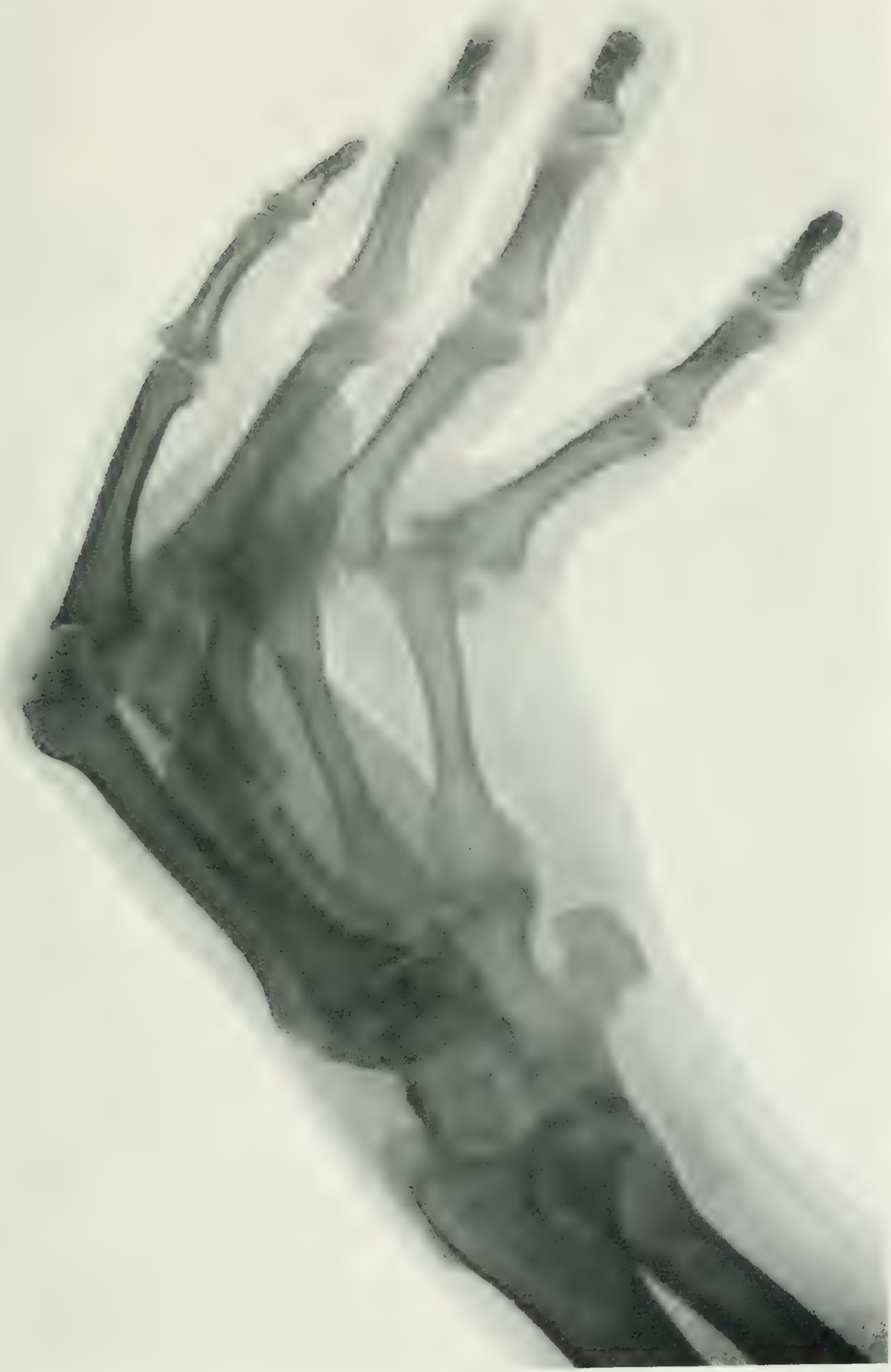


FIG. 2.

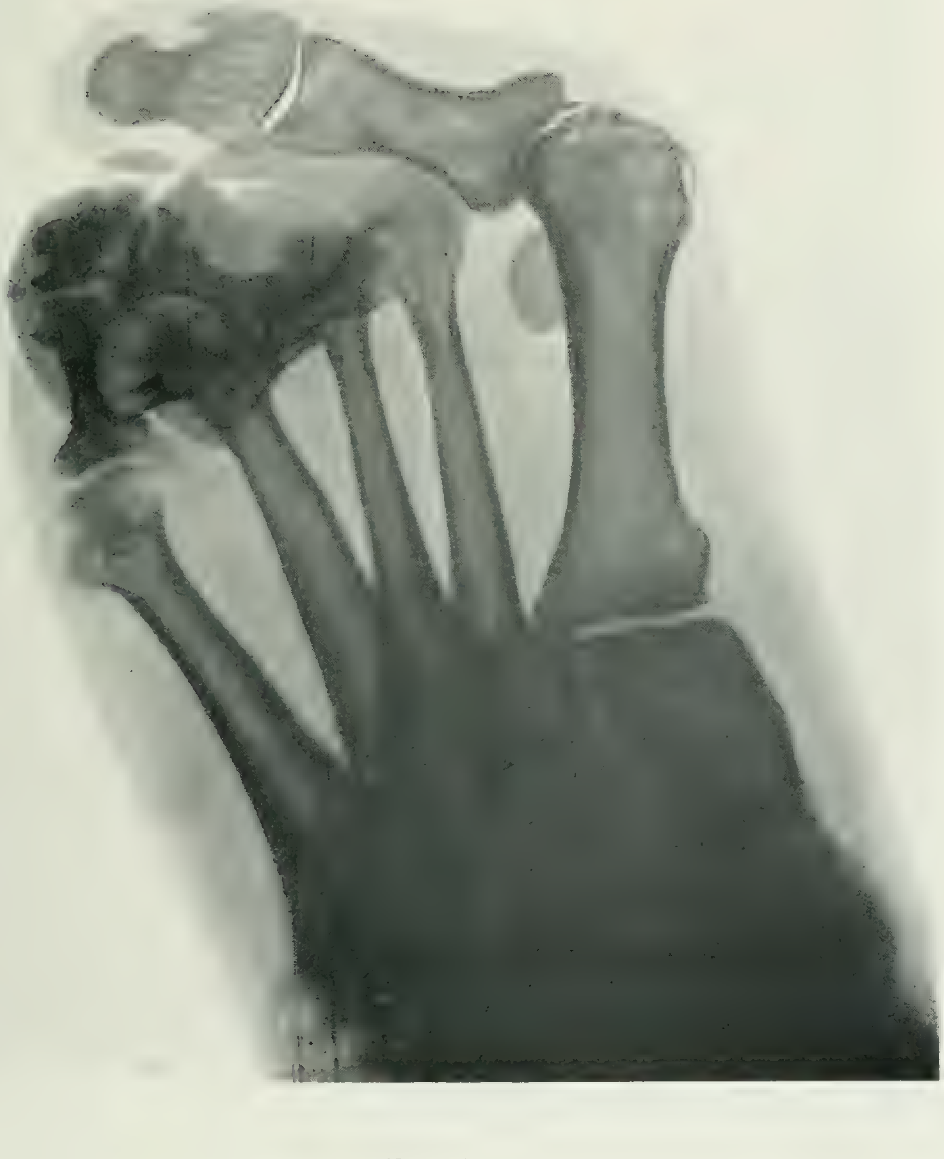


Fig. 3.

of the elbow-joint will allow. The plate rested on the palmar surface.

Fig. 3 is the shadow of the left foot, showing the toes pointed. The plate rested on the dorsum of the foot, while the tube was below.

In Fig. 1 the distortion of the carpal bones is well marked, showing the "mashed up" condition peculiar to rheumatoid arthritis. The normal distinct outline of the bones has entirely disappeared. The erosion of the bony tissue at the lower end of the radius and ulna, at the proximal end of the first metacarpal and at the distal end of the third, fourth, and fifth metacarpals, is plainly noticeable, especially in the third. The subluxation of the metacarpo-phalangeal joints may also be observed.

In Fig. 2 this subluxation is even more remarkable, while the carpus has entirely lost its normal appearance. The bones seem to be all more or less blended together. In both radiograms the deflection of the phalanges to the ulnar side is visible.

In the skiagram of the left foot (Fig. 3), the destruction of the first metatarso-phalangeal joint is shown; and here the dislocation is extreme, while it is even more marked in the second toe. The condition of the fifth metatarso-phalangeal joint should also be noted.

The skiagrams were taken in private practice in my own "Home."

CURRENT TOPICS.

Royal Infirmary Appointment.—John H. Teacher, M.A., M.D., has been appointed Pathologist to the Infirmary in room of Dr. Hugh Galt, resigned.

Western Infirmary Appointments.—The vacancies in the staff of Assistant Physicians, caused by the resignation of Dr. Dun and the promotion of Dr. Wm. MacLennan to be Physician to the Infirmary, have been filled by the appointment of James Carslaw, M.A., M.B., and John Souttar M'Kendrick, M.D., for a period of ten years.

St. Mungo's College.—The Governors have appointed

David M‘Kail, M.D., D.P.H. Camb., to be Lecturer on Forensic Medicine and Public Health, in succession to Professor Hugh Galt, resigned.

New Agent-General for Tasmania.—The Hon. John M‘Call, M.D., who has been appointed Agent-General for Tasmania, is expected to begin his duties in London on 1st May. Dr. M‘Call graduated at Glasgow University in 1881.

Royal Navy Medical Service.—At the recent distribution of prizes at Haslar the silver medal and books were awarded to Surgeon J. Glaister, M.B., who obtained third place in list with combined marks of 4,763 at the London and Haslar examinations. The first and second places were obtained respectively by Surgeons M‘Kerrow (Aberdeen) and Hitch (London Hospital).

University of Glasgow—Graduation in Medicine.—At the graduation on 12th of last month, the following received the degree of Doctor of Medicine :—

I. *With Honours.*—Andrew Connal, M.B., Ch.B. Thesis, "A Clinical Study of the Cerebro-Spinal Fluid, in the various forms of Meningitis."

II. *With High Commendation.*—John Martin Munro Kerr, M.B., C.M. Thesis, "Operative Midwifery."

III. *With Commendation.*—James Chalmers, M.B., C.M. ; Thesis, "Puerperal Eclampsia." Daniel Craig, M.B., C.M. ; Thesis, "Ankylostomum Dermatitis."

IV. *Ordinary Degree.*—Alexander Blair, M.B., C.M. ; Thesis, "Paralysis of Peripheral Origin in Pregnancy and the Puerperium." John Morton Buchanan, M.B., C.M. ; Thesis, "Industrial Diseases in connection with the Manufacture of Sodium and Potassium Bichromates." Gavin M‘Callum, M.B., C.M. ; Thesis, "A contribution to the subject of Cavernous Angioma and its Treatment." James Campbell M‘Clure, M.B., C.M. ; Thesis, "A Study of the Ætiology and Symptomatology of Scarlatinal Rheumatism."

This year marks the commencement of the new arrangement whereby the final examination in medicine will be held twice yearly, viz., in March and October. The following, having passed at the March examination, received the degrees of Bachelor of Medicine and Bachelor of Surgery :—

I. *With Honours.*—George Macleod, M.A. ; William Howat, M.A. ; Matthew Ignatius Thornton Cassidy.

II. *With Commendation.*—William Wilson Rorke : Arthur Turnbull, M.A., B.Sc. ; John Allan.

III. *Ordinary Degrees.*—James George Anderson, William Hunter Stirling Armstrong, Douglas Morris Borland, Morris William Browdy, John Adam Gib Burton, John Cameron, Weir Burns Cunningham, James Cowie Dick, Alexander Gordon Gilchrist, George Stevenson Gordon, Edward O'Driscoll Graham, James Harper, M.A., John Parlane Kinloch, David Neilson Knox, Alexander Macphail Macdonald, Murdo Duncan Mackenzie, Allan M'Pherson, Thomas Marlin, Henry Nimmo Rankin, Alfred Roemmele, William Rutherford, James Johnston Sinclair, James Brown Whitfield, John Alexander Wilson.

POST-GRADUATE CLASSES AT THE ROYAL INFIRMARY.—We would draw the attention of our readers to the summer course of post-graduate classes which begins to-day. As in former years the range of subjects is an extensive one, and no fewer than sixteen classes have been arranged for. Most of the classes meet in the afternoon; but there is, in addition, a considerable number which will be held in the forenoon. Besides clinical medicine and clinical surgery and gynæcology, there are courses on the special subjects (ear, eye, skin, throat and nose, &c.), and the time-table is so arranged that graduates coming from a distance may very conveniently fill in their day. These courses have in the past met with a very encouraging reception; and, from a perusal of the syllabus, it will be seen that the facilities now offered for post-graduate study are unsurpassed, and cannot fail to be of great advantage to those who may attend these classes. Copies of the syllabus, giving full information as to dates and hours of meeting, fees, work of the various classes, &c., may be obtained on application to Dr. Thom, Medical Superintendent of the Infirmary.

GLASGOW DENTAL HOSPITAL.—The distribution of prizes and certificates at the close of the winter session of the hospital took place on 16th March. Sir James Fleming, Chairman of the Board of Governors, presided, and was supported by a number of representative citizens, professional and otherwise. The chairman stated that during last year there had been over 13,000 patients treated. Of these only 20 per cent had had extractions, while 80 per cent had undergone conservative operations. He alluded to the great paucity of subscriptions, and paid a high tribute to the self-denying zeal shown by the staff in gratuitously giving their time and skill to the service of the poor. Sir Hector Cameron, who spoke next, gave an interesting account of the evolution of the dental profession. Prior to the passing of the Act of 1878 it was in a chaotic condition, and contained a large class of practitioners who certainly could not be counted educated in any special or general sense. But, since the establishment of the Dental Register, things had in time been very much changed for the better. Not only had the profession of dentistry been very much raised, but public attention had been strongly directed to the preservation of the teeth. This was so not only as regards private individuals, but the matter had had increasing attention paid to it by the School Boards and by the War Office. Professor Glaister referred to the loss the hospital had sustained by the death of the late Mr. H. E. Clark, C.M.G. The prizes were then distributed by Mrs. M'Innes Shaw, who, in the course of her remarks, impressed on the meeting the necessity of looking after the teeth of the children, so that when they grew up they might never experience that dreadful and terribly depressing feeling which even the bravest man and the most heroic woman felt while wending his or her way to a dentist.

We think that one of the most striking points in the proceedings is that referring to the large proportion of cases in which conservative operations were performed. This fact draws a parallel between dental and general surgery. In former times dentistry in the public mind was synonymous with teeth-extraction, even as a general surgeon was looked on as one who was always ready, nay, anxious to "cut off a man's leg." Tradition dies hard, and the old view regarding dentists and surgeons is still held by many. Those who hold this view are, however, a diminishing number, and, leaving surgery out of the question at present, the circulation of a report such as the Dental Hospital has just presented will go far to enlighten the understanding of the "πολλοι," and so to lead to an improvement in the physical health of the future generations of the race.

NOTIFICATION OF BIRTHS IN GLASGOW.—The recent report of Dr. A. K. Chalmers to the Health Committee of the Corporation of Glasgow is full of interest, and raises some suggestive points. He states that during 1908, out of 23,733 births, 86·3 per cent were notified. The smallest proportion of notifications was in the Kelvinside Ward (63·3 per cent), while in Cowcaddens Ward the maximum ratio of 99·3 per cent was obtained. In eight other wards the percentage of notifications was also over 90 per cent of the births; in five wards it was between 80 and 90, and only in two wards below 70. Of the 20,485 births notified, 45 per cent were attended by medical men, while 55 per cent were attended by midwives or handy women. The lowest proportion (24·3 per cent) of medically attended births was found in the Cowcaddens Ward, and in two other wards the proportion was below 30 per cent. Using the notifications, it was for the first time possible to compare on a fairly reliable basis the incidence of puerperal fever in medically and non-medically attended cases. Of the 117 cases recorded, 32 had been attended by medical men and 85 by midwives, corresponding to a rate of 3·4 per 1,000 births attended medically, and 7·5 per 1,000 of those births attended otherwise.

Poor Law Medical Relief.—Dr. John C. M'Vail's Report to the Royal Commission on the Poor Law has just been issued, and it would be difficult to appraise its value too highly. The report covers a wide field of investigation into subjects which are of interest alike to medical, sanitary, and poor law authorities. Dr. M'Vail concludes his report by expressing the opinion that poor law medical relief, both urban and rural, is inadequate, and that the whole system would break down if it were not aided by the general hospitals on the one side and gratuitous medical work on the other. He lays much stress on the principle of "conditional relief." The worst kind of public policy is, he declares, that under which an authority representing a community confers personal benefits without any accompanying requirement of good order or obedience. "It is not worth while entering on any reform of the poor law unless this policy is changed. Beneficiaries must be compelled to obedience alike in their own and in the public interest. And the officers who are placed in direct charge of the beneficiaries must themselves be subject to supervision and discipline." As to the investigator's recommendations, they proceed on two assumptions—that the present system of boards of guardians is to continue or that a new system is to be established. If guardians are to continue, the Local Government Board should possess and exercise much greater powers than at present. It should be able to compel guardians to take proper action in the details of government of their institutions, and should have power to specify the amount of accommodation necessary. The administrative areas should be greatly enlarged, while indoor and outdoor medical relief should be under regular and systematic inspection by medical officers of the Local Government Board. There should be proper public supervision over the disposal of the four millions sterling which is annually spent on outdoor pauperism. Existing poor law infirmaries, workhouses, vagrant departments, and children's homes should be the subject of a special inspection with regard to structural defects, and plans for new or altered institutions should be rigidly examined. Dr. M'Vail urges also a number of alterations which he shows in his report on his investigations, and which are summarised above, to be necessary, such as sanitary supervision and the treatment of epileptics and imbeciles. Rural boards of guardians should, he considers, contribute to general and special hospitals to which they send cases, and in some instances should combine to provide infirmaries of their own. Subject to proper safeguards there should be power in suitable cases for compulsory removal to and detention in poor law institutions, and compulsory labour should be imposed upon able-bodied persons who become paupers owing to refusal to work. Children should not be reared in workhouses, and boarding-out should be encouraged. Pauper widows should, if they are competent to rear their children, receive sufficient money relief, and their use of it and the condition of their homes should be properly supervised. If the mothers are unsuitable and cannot be improved the children should be taken from them.

If the guardians are to be abolished it would be desirable, in Dr. M'Vail's opinion, that the duties of disease prevention and disease treatment of paupers should be in charge of one and the same authority, but at present the rural sanitary areas in England are much too small for such work, and the same remark applies to the sanitary areas outside the great towns. If there were sufficiently large areas such combination of duties under a new authority would have various advantages. Its principal officers would not necessarily be sanitarians, but might be clinicians. They would have charge of the healthy rearing of pauper children, the control of phthisis, and preventive measures for general diseases. Regarding the question whether the unification of poor law and public health services would be possible, the investigator states that he has quite insufficient knowledge to form a definite conclusion. Whatever authority might be created it would have to be strong, not only to give but to refuse—"and if the country is to avoid being overburdened or overwhelmed by attempting to support those who can support themselves, the duty of refusing unneeded relief will have to be seriously undertaken and persevered in."

In a special memorandum Dr. M'Vail opposes a free medical service in the country as a whole, and favours the establishment throughout the country of medical provident institutions, whose membership would be voluntary. He thinks that if the country were divided into areas for medical provident purposes, if all the medical men living within that area were allowed to put their names on the list of the institution as willing to act, if all who were willing to receive its benefits were allowed to contribute a fairly sufficient amount to make them realise that what they were getting was worth paying for, the State might subsidise such institutions so as to have a share in the control. He would allow the contributors to select from the list whatever doctor they might prefer. Each medical officer should make perhaps annually a visit to the members on his list to ascertain their condition as to health, and to give any necessary advice towards prevention of illness. The establishment of such institutions might relieve friendly societies from their need to provide medical attendance, and would tend to prevent resort to hospital charities; poor law authorities might have a sick pauper attended by a medical officer of a provident institution. Dr. M'Vail agrees that such institutions would not be a substitute for rate-paid medical relief of the destitute, but says they would diminish the amount requiring to be spent on such relief, at the same time maintaining the foundations of personal thrift and independence, and would work for the national welfare by raising the general standard of health, and attacking the very sources and origin of pauperism.

The Laws of Growth.—Early last month Dr. Arnold Gray read a paper on "The Laws of Individual Growth" to the Royal Philosophical Society. At the outset Dr. Gray stated that he had obtained a long series of records of the rate of the growth of boys from one of the public schools, and that he had made a series of observations on the mode of growth in animals and plants. In the regular type the child increased at a uniform rate. This type was not common in the human subject, occurring in only 12·3 per cent. It was also rare in the case of rabbits and guinea-pigs, but was the usual mode of growth in the internodes of plants. The irregular type was the common form in man, and found to the extent of 83 per cent. Growth was interrupted for periods of indefinite length, when the increase was slow or completely suspended, this stage being followed by another when growth was perhaps very rapid. This was also the usual type found in rabbits and guinea-pigs. In the cyclic type, again, variations in the rate of increase occurred in a definite order, forming a succession of waves in the curve of growth. It was very rare in man, being observed in only 4·7 per cent of the cases. In Belvidere Fever Hospital 1,395 children suffering from infectious diseases had been weighed and measured on admission and dismissal. The average rates of growth in scarlet fever, measles, and diphtheria were slower than the average rate of growth of healthy children at the same age. The child was born with a tendency, possibly hereditary, towards one form of growth or another, and external agencies played little, if any, part in determining regularity, irregularity, or cyclic variations in the rate of increase.

This is a subject which does not seem generally to have attracted much attention, and we think that it has a peculiar interest at the present time when so much work is being done in the medical inspection of schools and in State medicine generally. Dr. Gray's paper is a thoughtful one, and we are much indebted to him for bringing before us the results of his studies.

MEETINGS OF SOCIETIES.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.

MEETING VIII.—5TH FEBRUARY, 1909.

The President, DR. WALKER DOWNIE, *in the Chair.*

I.—CASE OF CEREBRO-SPINAL FEVER—ELEVEN MONTHS' SEVERE ILLNESS FOLLOWED BY COMPLETE RECOVERY.

BY DR. JAMES MACLEAN.

I. H. B., a girl, æt. 4⅓ years, on 21st March, 1907, awoke in the early morning, complaining of stiffness and pain in the right hand. She became uneasy and restless, but was not thought to be very ill until well on in the day, when her colour was noticed to be changing. I was sent for about 3 P.M., to come at once, as she appeared to be dying.

When I saw her she was lying still, apparently sleeping, but easily roused, and resenting the slightest interference. Her colour was livid, with numerous petechial spots on the face and neck, lower part of abdomen, and thighs. Temperature, 103°: pulse and respiration rapid and shallow. There was no marked retraction of the head or Kernig's sign, but the diagnosis admitted of very little dubiety, and was confirmed by Dr. Wright, of the Sanitary Department, a few hours later.

In the evening the temperature had fallen to 98·8°, pulse remaining high (160), and respiration 56. During the night there was marked retraction of the head, livid colour, nostrils pinched, lips colourless, pupils much dilated, pulse thready, slow, and difficult to find. Frequent vomiting and screaming.

The rapid changes in all the symptoms formed a picture of the stormy nature of the disease, such as was calculated to give the impression that cerebro-spinal fever is the most painful form of illness through which a child can pass. She would sleep for a few minutes, then wake up with screams, as if in greatest agony, the head thrown back, and the dorsal muscles held in a state of tonic spasm. The spasm and pain would be soothed by the application of cold sponges to the back of the neck, only to be followed by a period of vomiting and prostration. The temperature never remained the same for more than a few minutes at a time, the four-hourly chart giving a very poor idea of the rapid variations. Nourishment, being refused, had to be administered by force in the quieter intervals.

After a few weeks of this, the screaming fits sometimes ended abruptly in a cataleptic trance of a most alarming nature—the patient would suddenly lie still, semiconscious, pupils dilated, breathing imperceptible, perfectly passive, the limbs remaining in any position in which they were placed; then, after twenty minutes or half an hour, vitality would gradually return.

The symptoms of nasopharyngeal irritation continued for a week or so—coughing and sneezing.

On 26th March she complained of pain in the left ear and left side of head. By 31st March she was passing urine involuntarily in bed.

On 3rd April she had pain in the left eye, and on 6th April pain in both ears.

On 11th April the first period of the illness seems to end. The temperature from being irregular becomes periodic. Retraction of head disappears and gives place to boring and complaints of lateral headaches, with disturbance of motor functions, commencing in face and hands and spreading to body and limbs; diminished power of taking food.

On 4th May a period of considerable improvement begins, but there is still a good deal of sickness, pain, and restlessness.

14th May.—Exacerbation of all the symptoms.

17th May.—Complaining of head and ear pains, breathing heavy and sighing, general uneasiness during the night.

18th May.—Semiconscious, twitching, rigors, and sickness.

24th May, 5·30 A.M.—Very pale, changing to livid mottled colour, face twitching; wakened with pain in right ear. A sickly sweet odour was observed, apparently emanating from the head.

13th June.—Restless and uneasy, but more observant than usual.

Towards the end of June the patient became quieter, less actively ill, but more passively so. She lived on peptonised milk, meat juice, and brandy, with rectal injections of panopepton and brandy. She became more and more nervous and shaky, her crying fits often ending with a cataleptic seizure. These were best controlled and often prevented by 3 grain doses of antipyrin.

18th July, 11·30 A.M.—Uncontrollably noisy, shrieking for twenty minutes, throwing the body backwards, twitching, and trembling. Such attacks are representative of what frequently took place during July and August. Bromide and antipyrin were in constant request.

August.—Severity of seizures gradually abating. Exudation of sticky serum with heavy odour from back of neck, apparently giving relief; also a sero-purulent discharge from eyes and ears. There was frequent squinting and twitching of the eyes and eyelids, the patient being unable to fix her eyes on any object.

September.—Condition much the same; head hot and throbbing, cooled by cold water cloths.

1st October.—Squinting badly. Drowsy when awake, and very nervous.

9th October.—Unable to swallow—danger of choking when the attempt is made.

On 14th October Dr. Lindsay Steven saw the case with me, and pronounced it hopeless. The patient was lying on her left side in an attitude of complete flexion. She had made no voluntary movement for several weeks, was emaciated to the last degree, and there was a strong growth of dark hair on her cheeks and extensor surfaces. She was utterly worn out with the six and a half months' struggle for life, and there was no indication that the scene could end otherwise than in death.

On 17th October the temperature fell below normal, and never again did it rise to any appreciable extent. The recession of the meningeal inflammation began, and could be traced in the inverse order in which it had advanced.

6th November.—The left arm was twitching badly, but the patient was beginning to attempt voluntary movement. The hand and arm got gradually more under control, and then the right began.

27th November.—She stretched out both her legs, and attempted to speak; was sleeping for two or three hours at a time.

In December she was taking food well, was getting fatter, and the abnormal growth of hair was disappearing. She could control the movements of her eyes and limbs, and take an interest in dolls and pictures.

In January she was propped up in bed, and then carried to the sofa for a change, and in February the nurse, who had watched and tended her through eleven long months of suffering, often soothing her most painful spasms by holding her to her breast for hours at a time, nourishing her under most trying and difficult circumstances, left her completely recovered, but weak as a newborn babe.

Note.—The exudation of large quantities of serum from the occiput and back of the neck without any skin lesion.

II.—GALL-STONE CAUSING ACUTE OBSTRUCTION: REMOVED BY ENTEROTOMY.

By Mr. Henry Rutherfurd.

The specimen, which was quite clean and free from accretion of intestinal contents, measured $1\frac{1}{4}$ inch by 1 inch by $\frac{15}{16}$ of an inch, and showed facets at either end; smaller, that is, than an average walnut, and smaller than the largest size of Murphy's button. It was firmly grasped by the small intestine, which showed some submucous ecchymoses immediately above the impaction, and was markedly contracted below it.

The patient was a woman, aged 66, the subject of herniæ through a long laparotomy scar of twenty years' standing. There was no strangulation of the herniæ, nor was the stone felt in the loops of bowel, which were easily reduced.

It is not the smallest stone which has been recorded as causing obstruction in the ileum, nor do comparatively small stones necessarily pass freely through the colon. Spasm from the presence of the migratory body seems to play a part in the arrest of the stone (v. Wilms, "Der Ileus," *Deutsche Chirurgie*, 1906).

No history of jaundice. The previous laparotomy was apparently for ovarian tumour. History of illness two years ago with epigastric pain lasting six weeks, and pain not confining her to bed for some weeks before the acute attack, with vomiting two days before admission, ending with fæcal vomiting that day. The stone had probably ulcerated its way from the gall-bladder into the duodenum. One or more may have preceded it, and it may be followed by others. Patient made a good recovery.

III.—ANKYLOSIS OF JAW FOLLOWING OTITIS MEDIA: EXCISION OF CONDYLE AND NECK.

By Mr. Henry Rutherfurd.

Sarah K., æt. 8½ years, suffering from otitis media following scarlet fever, treated by scraping of polypi two years before in another institution. Gradual fixation of the jaw since. Now complete rigidity. With difficulty the handle of a scalpel can be passed between the upper and lower incisors. The growth of the lower jaw has suffered, and there is the characteristic retreating chin and "Vogel-gesicht."

Operation (5th November, 1908).—Bony ankylosis was found. The condyle and neck (in all, half an inch vertically) were chiselled out on the right side. There was immediate relief. Beyond stretching the mouth well open at the time, no passive movements have been used. No flap of muscle interposed to prevent adhesions. The jaw continues to be freely movable. There is good contact of the teeth, and no deviation to the side of operation.

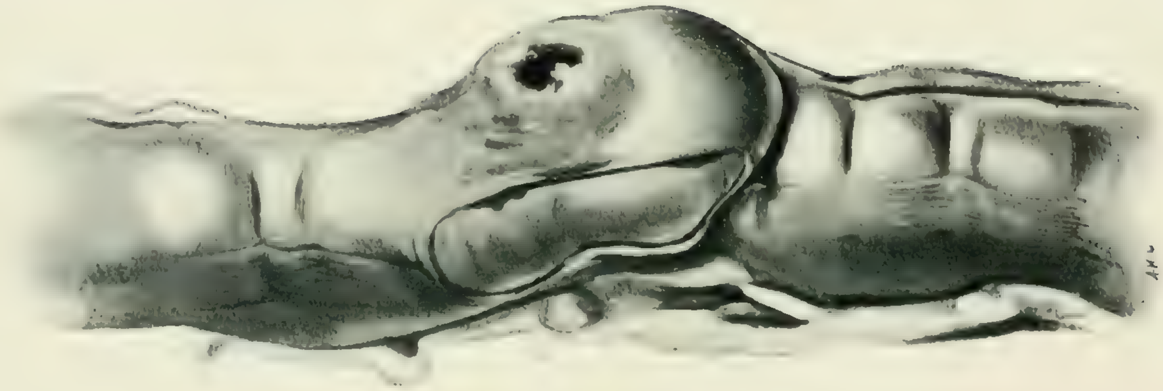
The incision used was that recommended by Mr. Greig, of Dundee. Beginning in front at the level of the upper margin of the orbit, it passes downwards and backwards to the condyle opposite the external auditory meatus, then turns vertically downwards. A flap is formed which can be pulled downwards and forwards, turning down with it the upper part of the parotid and the contained twigs of the seventh nerve.

The access obtained in this case was quite satisfactory. No damage resulted to the innervation of the orbicularis palpebrarum or to the temporal artery. Scar almost unrecognisable. (Patient shown three months after operation.)

IV.—CONTUSION INJURIES OF THE ABDOMEN.

By Mr. Henry Rutherfurd.

The following are brief notes of seven cases occurring in the last six months, of which four recoverd and three died:—



Rupture of Transverse Colon, par Éclatment.

(Mr. Rutherfurd's Cases.)

1. Man, æt. 34, in whom a tear of the jejunum was sutured sixteen hours after injury by knee of a man falling upon him in a struggle. (Patient shown.)

2. Boy, æt. 13, in whom abdominal section, done twenty-four hours after "run over" injury by a hansom cab, discovered merely a large extravasation of blood in peritoneal cavity, but no visceral injury. Perforation of small intestine high up followed ten days later, and was treated by re-opening abdomen and closure of the secondary perforation. (Patient shown.)

3. Man, æt. 29, admitted nine hours after crush by cage of hoist, and in whom a notable feature was marked diminution of the liver dulness in front, but no hardening of the abdominal wall, and no vomiting. No operation done. Recovery.

4. Man, æt. 19, operated on thirty hours after injury by a fall of 20 feet, in which he struck a wire rope with his abdomen. Nothing found but extravasated blood in the peritoneal cavity. Recovery.

5. Boy, æt. 7. Blow from heavy piece of iron-bound wood rolling on to him. Remarkably well for first twenty hours, then severe vomiting, stupefaction, and slight rise of temperature. Operation after nearly twenty-four hours. Peritoneal cavity full of turbid fluid with fibrin formation. Jejunum torn clean across. End to end anastomosis, abdomen washed out. Died, with high temperature, about seven hours later.

6. Man, æt. 25, steeplejack, fell 80 feet, and was brought in within two hours, with great abdominal distress. Fracture of ribs on right side, with emphysema. Inability to pass urine, which was intimately mixed with blood. Three hours after admission he was put on the table, but from his condition of enfeeblement operation was not proceeded with. He died ten hours after the injury. *Post-mortem* there was found rupture of the right kidney, fracture of the lower three or four ribs, with emphysema and pneumothorax, also copious extravasation of fæcal matter from a rupture of the transverse colon. (The portion of transverse colon involved was shown.) The muscular coats had given way over a patch the size of one-half of a walnut, allowing the mucosa and submucosa to bulge. In the middle of the bulging or herniated part there was a stellate opening which would admit a No. 15 bougie. The rupture was to the left of the middle line, and there was no gross injury to the body wall on that side. It seemed to be a typical example of rupture by bursting or *éclatment.* (Specimen shown—see plate.)

7. Man, æt. 37, brought in with acute obstruction, great abdominal pain, and had distended abdominal wall, of more than forty-eight hours' standing, symptoms developing on recovery from a drinking bout, during which he could give no account of himself. On opening the abdomen intense general peritonitis was found. Much fibrinous agglutination of the intestines, and fæcal extravasation in lower part of the abdomen; a perforation in sound ileum. The perforation was sutured, and the abdomen washed out and drained after tapping distended coils. The patient died two days later, after much vomiting.

Specimen shown.—In the middle of the free surface there is small round opening with tumefied edges in otherwise normal ileum; probably also a rupture by bursting.

V.—CASE OF PERISINUS ABSCESS WITH MURAL THROMBUS IN THE SINUS, BASAL MENINGITIS, AND TUBERCULOUS TUMOURS OF THE PONS, CEREBELLUM, AND BOTH SIDES OF THE CEREBRUM.

By Dr. Kerr Love.

About a year ago I brought before the Society a case of tuberculosis of the temporal bone in which, although operation had been successful in removing the disease from the temporal bone and the glands in the neck, the death of the patient was caused by a small tumour of the pons varolii. The case I show to-night illustrates further the complexity of these cases of tuberbulosis in children, and shows that what seems an ear condition alone, offering a good prospect of recovery after operation, may from the first be really a hopeless case of severe general infection.

The notes of the case I now read are by Dr. Doctor, and are taken from the Ward Journal.

M. W., æt. 6, admitted on 6th October, 1908, to Ward 26, suffering from pain and swelling over mastoid region of right side.

History of illness.—Patient had measles two years ago, followed by whooping-cough. Seven weeks ago, after having been on holiday, the child became ill, and symptoms of fever were present, viz., furred tongue and high temperature. Typhoid fever was suspected, and a Widal test was done, but with negative result. Under treatment the child's condition improved; but two weeks ago pain was complained of behind the ear, and swelling was seen to be present over the mastoid region shortly afterwards. No pus has at any time been seen coming from the ear, but at date of onset of ear symptoms a slight discharge of blood was noticed. This has not appeared since.

Present state.—Examination on admission showed some swelling and slight œdema over the mastoid region of right side. Tenderness is only elicited by pressing firmly over mastoid apex, but fluctuation can be made out over an area about the size of a shilling. No redness is present, and there is no projection of auricle forwards.

On examination of right membrane, pus was seen to exude from a perforation in anterior inferior quadrant. Pus contained pneumococci in abundance, and to a very much smaller extent streptococci. Examination of left ear showed nothing abnormal. Temperature on admission normal; on evening after admission it had reached 101°.

Operation.—This morning under $CHCl_3$ Dr. Love made a semilunar incision behind auricle. Pus was found in quantity beneath periosteum. No definite sinus was found leading to antrum or to mastoid cells, but bone cells were in a very degenerate condition. These were removed posteriorly with a curette, and the sinus wall exposed; this was found to be covered with granulations, and a perisinus abscess was discovered. No thrombosis, either of the sinus or of interior jugular vein, was made out. The sinus wall was exposed for fully 1 inch, and the *outer* bony wall of the mastoid process was removed almost right down to the tip. The middle ear was not interfered with, but irrigation from external auditory meatus to the wound was easily performed. The cavity was packed with CHI_3 gauze.

Temperature during residence in hospital was satisfactory, and the child was dismissed on 19th November, at her parents' request, to have wound dressed at home. Her general condition had improved, but not to any great extent. She was still very anæmic, and had had persistent vomiting for the last two or three weeks, which at times could be controlled by ordinary dietetic and medicinal measures and at times could not. There are moist râles all over chest, but no definite signs of disease. The wound had not closed up to any extent. Both sinus and mastoid process were covered with granulations. Sinus was yielding to touch, and its contents could be felt to be fluid.

Re-admission—As the vomiting had increased after she went home, and as she was complaining greatly of pains in her head, she was re-admitted on 11th December, 1908. The wound was decidedly septic, and was filled up with granulation masses, which bled very readily. There is still some discharge from meatus.

On 27th December, 1908, under $CHCl_3$, Dr. Love examined posterior wound. The sinus wall was found to be exposed for fully 1 inch, and to be covered with granulations; the hollowed out mastoid process is also filled with granulations.

Second operation.—Facial paresis of right side of face was noticed on 5th January, 1909, and on the 7th, under $CHCl_3$, the tip of mastoid process, which was necrosed, was removed. The tympanic plate was found to be sound, and was left untouched. Nothing was found to account for facial paresis.

For three days after operation patient continued fairly well. Facial palsy was more marked, but there was not a complete paralysis. Four days after operation some rigidity of neck muscles was noticed; this was more marked on the 12th—*i.e.*, the day following—and Kernig's sign was present but not pronounced. On examination of fundi an optic neuritis with blurring of discs was made out. Temperature, which hitherto had been ranging between 99·5° and normal, gradually rose during 12th and 13th January, and at 12 P.M. on 13th was 106°. Patient died at 2·30 A.M. on 14th January.

Post-mortem of head only obtained.

Remarks.—I was prepared at any stage in this case to obliterate the sinus and tie the jugular in the neck, but did not go on with the operation because there never occurred symptoms of sinus thrombosis, and because I felt sure the sinus contained fluid. And yet the autopsy showed a mural thrombus, which probably gave rise to no symptoms, and operation on which would certainly have done nothing to save the life of the child.

All along the sickness formed a puzzling feature of the case, and during life its correct import was not appreciated by me. The occurrence of facial paralysis, which was not complete, and for which no cause could be found in the diseased mastoid process, made me think of an intracranial cause; but I was not prepared for the multiple tuberculous tumours which were discovered at the autopsy, one or more of which were, I think, the real cause of of the sickness.

The gastric symptoms simulating enteric fever preceded the ear discharge by five weeks, and the connection between a primary abdominal or pulmonary lesion and the multiple tumours on the brain was probably a direct one, the ear affection being only an incident in the course of the case. Although the child really died of meningitis, which may have been secondary to the ear affection, the case is worth recording because it shows that death was inevitable, even had no ear affection and meningitis occurred. The conservative treatment followed seems justified, as no good result would have followed opening the cranial cavity or the sigmoid sinus.

Such cases teach us never to be optimistic in operating on the temporal bone for the cure of tuberculous middle-ear disease. I think we too often proceed as if the ear affection were primary, or, if secondary, that the disease is limited to the temporal bone, the post-nasal space, the tonsils, and the glands in the side of the neck, and that the infection has reached the ear by the Eustachian tube. This leads to aggressive surgery, and perhaps to the opening of the cranial cavity in hopeless cases. If the view be taken that the affection in the temporal bone is generally carried thence by the blood-stream from a distance—the abdomen or thorax —the surgeon will adopt conservative treatment, and will be slow to open the cranial cavity unless where localising symptoms of a curable condition declare themselves.

Pathological report.—There had been some difficulty in obtaining permission for an autopsy, and consent was got only to examine the head.

The body is much emaciated, and is covered all over by very fine downy hair. There is slight rachitic rosary and slight genu valgum. The pupils are moderately dilated, the left being slightly larger than the right. There is a mastoid operation wound on the right side. Rigor mortis is passing off.

The skull is remarkably thick for a child. The dura mater is not adherent. The pia arachnoid, as seen over the convexity, is markedly injected. Extending upwards along the meningeal artery of the right side there is slight purulent exudation. There is none in the same situation on the left side. Smears were made from this exudate and stained for organisms. Pneumococci were found to be present, but no tubercle bacilli. The base of the brain shows well-marked meningitis. There is fairly abundant sero-purulent exudation, particularly round the optic chiasma and in the cisterna basalis. Smears were made from this exudate and stained. Tubercle bacilli and a few pneumococci were found to be present. A culture in bouillon was made from the basal exudate, and the growth obtained consisted of pneumococci. The convolutions of both cerebral hemispheres show well-marked flattening.

On examination of the right lateral sinus, there is found a definite mural thrombus, situated in the sinus just before it enters the jugular bulb. The thrombus does not completely block the lumen of the sinus. The rest of the sinus contains fluid blood. On the surface of both cerebral hemispheres there are seen a number of nodules, slightly smaller than a pea, embedded in the cerebral substance and projecting only slightly. These shell out easily by counter-pressure on the tissue round about, and leave a definite cavity in the brain tissue. These nodules are fairly firm, and appear yellowish on section. All the ventricles, except the fourth, are distended with clear fluid. The left cerebral hemisphere was placed in formalin for future section. The right cerebral hemisphere was sectioned fresh. It shows numerous similar nodules throughout its substance. A few are near the surface, but others were situated deeply in the white substance. There are none in the basal ganglia nor internal capsule. These tumours are about the size of a pea; some are smaller and others are a little larger. They shell out easily, leaving a cavity with a well-defined wall. The smaller of these tumours are firm and yellowish in appearance; the larger are greenish and show breaking down in the centre.

Histologically one of these tumours shows simply a mass of caseous *débris*, surrounded by a definite fibrous capsule and a zone of round cells with some young vessels. Immediately beyond this the cerebral tissue shows some inflammatory reaction.

The cerebellum, on section, shows one similar tumour in its left half and two in its right half. The right half of the cerebellum is preserved. The pons, on section, shows two similar tumours, rather larger than a pea. One is situated at the upper part of its left half, and the other at the lower border of the left half, just below the pyramid and olivary body of the medulla. The left half of pons and medulla is preserved. The medulla shows no evidence of involvement in the disease. The left cerebral hemisphere, on section, shows similar tumours throughout its substance. There is one situated in the anterior part of the putamen of the lenticular nucleus of the base, which extends into the anterior limb of the internal capsule. There is a small one in the head of the caudate nucleus. There are none to be seen in the posterior limb of the internal capsule. There is also one or two situated in the occipital lobe.

VI.—FRESH SPECIMEN.

Dr. Syme showed as a fresh specimen a large exuberant epithelioma of the right auricle in a woman of 82.

GLASGOW NORTHERN MEDICAL SOCIETY.

AT a meeting of the Society held on 2nd February, Dr. A. J. BALLANTYNE read a paper on "Ophthalmia Neonatorum." Prior to 1881, he said, the disease was very prevalent, occurring in from 4 per cent to 19 per cent of all children born. After the intervention of Credé's prophylactic treatment the disease in his clinic fell from 10 per cent to 0·2 per cent, and many individuals were able to record thousands of births without a single case. In spite of the great decrease which took place after 1881 the disease was still far too prevalent, and was responsible for far too much of the preventable blindness of the present day. It has been estimated that from 30 to 40 per cent of the inmates of our blind asylums are there on account of ophthalmia neonatorum. Dr. Ballantyne sketched the history of our knowledge of the disease, and showed its relation to infection of the maternal passages. About 64 per cent of all cases are proved to be due to the gonococcus, 10 per cent to pneumococcus, 9 per cent to bacillus coli, but in many cases no organism is found.

The prognosis depends to some extent on the organism, and largely on the time at which treatment is begun and its thoroughness. As these cases are all preventable, preventive treatment ought to be adopted more as a routine than it is. Among the lower classes, where gonorrhœa is more common, midwives should be instructed to instil a 1 per cent solution of silver nitrate, which is effective, and not likely to cause any irritative discharge. In the better classes, where a doctor is in attendance, cleansing of the eyes with sterile water immediately after birth should always be done. The head should be washed before the child is bathed, and the soapy water of the bath be prevented from going into the child's eyes. If the doctor has any reason to suspect the presence of infecting maternal discharge, strict prophylaxis should be carried out.

Dr. James R. Riddell showed a case of large vascular nævus in a young child's face, which he was attempting to cure by means of x-rays without inducing ulceration. Over a course of seven months forty applications of the rays had been made, and there was a considerable reduction in the size of the growth. It is intended to continue the treatment for some time.

Dr. Riddell also showed a man who had six years ago contracted ringworm of the beard, and who had been treated with lotions, ointments, &c., with only temporary success. A cure had now been effected by means of copper ions. The method of treatment was as follows:—The positive pole of the battery is covered with ten folds of lint soaked in an aqueous 2 per cent solution of copper sulphate and applied to the affected part. The negative pole is held in the hand, and a current of 20 milliamperes passed through for about half an hour. In this case the process was repeated every other day till thirteen applications had been made, when all signs of the disease had disappeared.

At a meeting of the Society held on 2nd March, Dr. Alfred A. Young gave an address on "Osteo-myelitis of the Head of the Femur" or "Septic Arthritis of the Hip-joint." The lecture was illustrated by numerous x-ray photographs showing the condition in various pathological stages, and two children were shown in whom recovery had taken place. The disease was contrasted with chronic tubercular disease of the hip-joint, and the points in diagnosis from osteo-myelitis of the shaft of the femur fully explained.

Dr. W. F. Somerville also showed numerous skiagrams illustrating various chronic affections including rheumatoid arthritis and chronic articular rheumatism.

PARTICK AND DISTRICT MEDICAL SOCIETY.

At a meeting of the Society held on 17th December, 1908, Dr. Mechan, President, in the chair,

Dr. James Scott read a paper on the "Prevention of Phthisis." This, he said, was mainly effected by the cure of the infected individual on the one hand, and, on the other hand, by means to prevent infection of fresh cases, along with measures to maintain a good standard of health so that the general resistance to the disease would always be at a high level. The sanatorium *per se* had a relatively limited field as a factor in the prevention of tuberculosis. It concerned itself with only a small proportion of cases, and, in the absence of labour colonies and systematic after-care, was of permanent value to a still smaller proportion of cases. Since the general hospital had shut its door to phthisis, chronic and advanced cases were much worse off now than they were twenty years ago. Excluding the pauper, there was practically no provision for this class at all. Lanfine Sanatorium had 14 beds for advanced cases, and, as they were often kept for long periods, only very few were admitted each year. The segregation of these advanced cases and the education of the chronic case at home, or better, in hospitals or sanatoriums, would bring about a reduction in the incidence of tuberculosis more rapidly than could be effected in any other way. Improvement of the housing conditions was also, of course, of the utmost importance. Visitation by nurses attached to the tuberculosis dispensary was valuable, and a close co-operation between the labour exchanges, Charity Organisation Society, &c., was also necessary. Notification would bring before the authorities the urgent need for action in these directions, and it was to be hoped that this action would no longer be delayed.

Dr. Percival, Resident Physician of Bellefield Sanatorium, briefly described the routine treatment at the Sanatorium, and referred particularly to the work carried on by the patients there.

Dr. G. Arbuckle Brown referred to the circular recently sent out by Partick Town Council intimating that they had adopted a scheme of voluntary notification. They were prepared to receive a number of cases for education at Knightswood Hospital, and they desired to get cases in an early stage. They were also prepared to supervise cases notified when desired by the practitioner. Bacteriological examination of sputa and disinfection of premises were also undertaken.

A general discussion followed.

REVIEWS.

Poisoning by Arseniuretted Hydrogen. With a Record of 120 Cases by Different Observers. By JOHN GLAISTER, M.D. Edinburgh: E. & S. Livingstone. 1908.

THIS forms a valuable contribution to the somewhat sparse literature on this very important subject. With regard to ordinary arsenical poisoning, perhaps too much has been written, but the author is to be congratulated upon filling a gap which has been rather a blot upon this special department of forensic medicine. Cases of poisoning by this gas are not at all uncommon, but so little is known to the general body of the profession upon this variety of arsenical poisoning that many cases have undoubtedly been passed over.

Although only a few cases came under the direct observation of the author, the collection of the remaining cases renders the book much more valuable from the reader's point of view as giving practically a complete list of such cases on record up to the present time.

The author has also, very wisely, given at length the detailed *post-mortem* appearances in fatal cases. This information may be the means of attracting attention to appearances which otherwise might have been described as anomalous or unusual.

Preventive measures and analytical methods are given also in detail, while the tabubar *résumé* of cases at the end of the book will be found particularly instructive.

Infectious and Parasitic Diseases. By MILLARD LANGFIELD, A.B., M.B. London: Rebman, Limited.

THIS work is described as an "Introduction to Infectious and Parasitic Diseases, including their cause and manner of transmission," and it is designed for the use of nurses, students, and practitioners. A preliminary chapter on the causes of disease generally is followed by others on bacteriology, phenomena of infection and inflammation, after which the animal parasites are described in detail. Special attention is given to the "portals of entry" and the "avenues of exit" of animal parasites and bacteria, to disinfection, and the "collection and examination of excretions and secretions."

The general chapters are fairly clear expositions of their subjects for beginners. Full of definitions, yet comprehensive, they are eminently calculated to convey a good impression of the principles discussed. Diseases and their symptoms are not treated in a systematic way, and the particular information excludes symptoms and treatment. For this reason it is not sufficient as a text-book for medical students, though it is a useful book for preparatory study. Some of the definitions are vague and even misleading—*e.g.* (p. 99), "Inflammation: the changes which take place in a tissue when injured, and all those changes which follow as a consequence of the injury, constitute inflammation." And (p. 65), "In practical work—*e.g.*, surgery—objects and persons are rendered bacteria-free either through the use of antiseptics and disinfectants, or by mechanical cleansing by soap and water. The two methods are distinguished as the antiseptic and aseptic methods respectively." There are also a number of verbal and typographical errors, which we should like to see corrected in the second edition. The book is of convenient size, well printed, and sufficiently illustrated.

Tropical Medicine. By THOMAS W. JACKSON, M.D. London: Rebman, Limited. 1907.

Tropical Medicine, Hygiene, and Parasitology. By GILBERT E. BROOKE, M.A., L.R.C.P. Ed., D.P.H. London: Charles Griffin & Co., Limited. 1908.

THESE two books, as their titles imply, deal with a common subject, and as they deal with it in a similar manner they can conveniently be reviewed both at the same time. In the introduction to his book Dr. Jackson says that his "purpose has been to prepare for American medical men and students a simple and systematic presentation of the known and determined facts concerning such tropical diseases as are found within the boundaries of our own territory." And this may be taken as a very fair description of both these volumes, excepting that Dr. Brooke in his work writes with the experience of one who has studied tropical diseases in the eastern rather than in the western hemisphere, and, further, he does not write specially for Americans. But both the authors cover much the same ground, they describe the same diseases, and each devotes a useful chapter to the food, clothing, and general hygiene appropriate to a warm climate. In both the disputed points as to the true nature of such diseases as beri-beri or black water fever are judiciously handled, and in very few instances does either author venture to differ from the views held by the "acknowledged authorities."

In general, then, these two books are much alike, the chief difference between them being that Dr. Jackson's is larger print and perhaps more easily written, while Dr. Brooke's contains more information and yet is more condensed, and this, along with its small print, makes its reading at times rather laborious. Each book, however, seems eminently sound, and we have confidence in recommending either to any one wishing to study tropical medicine. Both the volumes are well supplied with illustrations, and these add greatly to the elucidation of the text.

The Treatment of Disease: A Manual of Practical Medicine. By Reynold Webb Wilcox, M.A., M.D., LL.D. London: Rebman, Limited. 1907.

The title of this volume seems to us to be somewhat misleading, for it is not, as its name might suggest, a manual on the *treatment* of disease: it is in reality a text-book on the theory and practice of medicine, in which *treatment* bulks more largely than is usual in a work of this size. But the author states his aims in the preface. He says, "While ætiology is important, pathology is interesting and a sound basis, and diagnosis is essential: it is from a thorough and broad knowledge of therapeutics in its larger sense that the practitioner will achieve his greatest success and win his most enduring reputation among his patients and the public at large. The therapeutic awakening which is now being experienced, shows that more to-day, than ever before, is expected of the clinician. With the practical needs of the physician always in view, this book has been written." Briefly, the book is, for its size, an average good text-book on the practice of medicine. It gives in a concise and terse manner an adequate account of the accepted facts of modern medicine. It has, doubtless, no very special features which would differentiate it from so many of the other text-books of medicine which have recently come before us; and while we cannot say that this one is much better than the average of these, it is certainly no worse. In places we notice signs of careless reading of proofs, as, for example, at page 516, where there are three printer's errors; but the subject matter is sound, and we have every confidence in recommending the work to our readers.

Diseases of the Heart. By JAMES MACKENZIE, M.D., M.R.C.P.
London: Henry Frowde and Hodder & Stoughton. 1908.

THIS great work by a great investigator, who has done so much to advance our knowledge of the heart and circulation, is one to be eagerly seized upon by all earnest clinical workers in this branch of medicine; and the more a man knows already about the heart the more certain is he to turn at once to Dr. Mackenzie for further information. The author's object, as he explains it in the preface, has been to ascertain the mechanism by which cardiac symptoms are produced, to find out their relationship to organic changes in the heart, to ascertain their prognostic significance, and to employ them as guides in treatment. In this work we have some of the results obtained from observations carried on during more than a quarter of a century, and involving the use of special methods and the watching of individual cases for many years. Dr. Mackenzie remarks that many of the seemingly trivial signs, such as the minute differences in the size of a pulse-beat or a slight delay between the auricular and venticular systoles, are of vital importance in revealing changes which are due to very definite affections of the heart. A close study of irregularities is also of importance, as throwing light, for one thing, on the functional derangements of the heart, and furnishing a basis for diagnosis, prognosis, and treatment.

The earlier chapters deal with the principles underlying heart failure, the fundamental functions of the cardiac muscle-cells, the development, anatomy, and physiology of the heart, and the preliminary examination of the patient. Then we go on to respiratory symptoms, reflex phenomena, and angina pectoris. The eighth chapter is on heart affections and a hypersensitive nervous system. After this we have chapters on instrumental methods of examination, the position and movements of the heart, the arterial pulse, arterial pressure, the venous pulse, and enlargement and pulsation of the liver. Then there follow discussions of rapid, slow, and irregular action of the heart, serious irregularities, the extra-systole, nodal rhythm, heart-block, exhaustion of contractility, dilatation, acute febrile affections, valvular defects and cardio-sclerosis. Other chapters are devoted to adhesive mediastino-pericarditis, congenital heart disease, heart disease and pregnancy, and chloroform and heart affections. Then follow a chapter on prognosis, and three chapters on treatment. There are four appendices dealing with the pulse in angina pectoris, the nodal rhythm, irregularities in cardio-sclerosis, and the effects of digitalis on the human heart. The work is furnished with a bibliography, an elaborate index, and a great wealth of illustrations.

It is rarely indeed that one encounters a new medical book which so promptly fascinates. One needs simply to glance through it briefly to recognise that this is a great work—authoritative, highly original, the product of much patient investigation, and full of instruction and charm for the interested reader. Every physician and general practitioner ought to procure and study it.

Post-operative Treatment. By Nathan Clark Morse, A.B., M.D. Second Edition, revised and enlarged, containing 5 Plates and 175 other Illustrations. London: Rebman, Limited. 1907.

In default of a system of apprenticeship, either as a house-surgeon or assistant to an operating surgeon, many a young practitioner must find considerable difficulty in the treatment of post-operative conditions. As a guide to such, the present work has been written, and, as will be seen from the title, its object is two-fold. It deals not only with post-operative treatment, but also with "the technic of certain operations with a view to securing better post-operative results." In his preface the author disclaims originality, his intention being to present an epitome of the methods used by modern surgeons; and he has succeeded in producing a compilation both interesting and informative. It is a pity, however, that the volume does not include a bibliography of the writings referred to in the text. We cannot help feeling that the book would have been more to the point if details of operative treatment had been omitted. The insertion of three plates showing suture of an abdominal wound is of doubtful necessity, and the same remark applies to those illustrations depicting operations on the skull, lateral lithotomy, hernia, &c. Notwithstanding these defects, the book may be recommended as one containing much useful information.

An Index of Treatment. By Various Writers. Edited by Robert Hutchison, M.D., F.R.C.P., and H. Stansfield Collier, F.R.C.S. Fourth Edition. Bristol: John Wright & Sons, Limited. 1908.

The success of this work has been phenomenal and must have given immense satisfaction to editors and publishers. The first edition was issued in November, 1907, and the fourth appeared twelve months later. As the work was favourably noticed in these pages so recently as eight months ago, no detailed account of it need be given on this occasion. The present edition has been revised throughout, and contains new articles on climatic treatment, hypnotism, prescribing, gunshot wounds, cut-throat, synovitis, and other subjects. The editors acknowledge the help they have received from the suggestions of readers, and they welcome further hints which may make the book still more useful to practitioners.

Clinical Lectures on the Surgical Diseases of the Urinary Organs. By P. J. Freyer, M.A., M.D. London: Baillière, Tindall & Cox. 1908.

Many of these lectures have already been published. They have been amplified and arranged systematically so as to form a volume on the surgery of the urinary organs.

The subjects treated are stricture of the urethra, prostatic enlargement, tumours of the bladder, calculi in various parts of the urinary tract, movable kidney, and tuberculosis of the urinary organs.

The subject of enlargements of the prostate naturally occupies a considerale space. The author may justly claim to have brought prostatectomy within the sphere of practical surgery, and in the section dealing with enlargement of the gland he expounds his views and treatment with great clearness, and with the authority of a qualified exponent of the subject.

The lectures on urethral stricture are well written, and are sound and practical, as also are those on vesical calculus.

The volume is freely illustrated and well got up. We feel that it does not need an extended notice, and we content ourselves with strongly recommending it to our readers. The author has avoided profound disquisitions on pathology. He has kept before him the practical point of treatment, and the result is a volume which will repay reading and repeated reference.

Surgery, its Principles and Practice, by Various Authors. Edited by WILLIAM WILLIAMS KEEN, M.D. Vol. III. With 562 Text-Illustrations and 10 Coloured Plates. London: W. B. Saunders Company. 1908.

THE contents of this volume of Keen's *Surgery* comprise articles on the head, neck, thorax, and abdomen.

The article on the surgery of the head has been written by Dr. Harvey Cushing, of Baltimore. It is of a length commensurate with the importance of the subject, and occupies almost a fourth of the volume. Beginning with affections of the external coverings of the skull, we find wounds, infective processes, affections of the blood-vessels and of the nerves, and tumours passed under review. The section on affections of blood-vessels is full of interest, and the same is to be said of that dealing with the nerves. The paragraphs on non-neoplastic swellings are also extremely informative.

The next part comprises the affections of the cranium, and contains an account of the diseases and injuries of the bones of the skull. Following a thoughtful consideration of fractures, comes an account of injuries of the head in the newborn. And so on we go, taking up meninges and ependyma, till we come to the brain. Here we note, to begin with, very important paragraphs, or, rather, pages, on localisation of function, and an account of the cortical areas. Then follows a description of the symptomatology of organic lesions, subdivided into general and focal symptoms, and this is succeeded by several pages on regional diagnosis and cranio-cerebral topography. This is one of the best parts of the article. Abscesses, concussion, contusion and compression, intracranial hæmorrhages and cerebral tumours, and sequelæ of injuries and diseases receive careful attention, and as a conclusion there is a short chapter on the technique of intracranial operations.

To each section and sub-section of the article a bibliography is appended. The illustrations are many and beautiful, and are a great help to the reader. Those illustrating surface-lesions, cranio-cerebral topography, and operative technique are particularly useful.

Dr. Cushing has given us of the fruits of his experience. He has, further, not hesitated to draw on that of other workers in the field, and the result is that in this article we have what may be truly called a monograph on the subject, and one which, when once perused, the reader will consult time and again.

The chapter on the surgery of the neck (Dr. Wyllys Andrews, Chicago) is of fair merit. It is somewhat scrappy in the section on embryonal cysts, and nothing is said on the etiology of salivary concretions, although the lines of treatment are good. There are, however, parts of value, *e.g.*, description of dissection of tuberculous gland.

The surgery of the thyroid gland is given in detail by Dr. Albert Kocher (Berne).

Dr. J. M. T. Finney writes the chapter on diseases of the breast, and there are here some very good illustrations. The mouth, teeth, and gums (Edmund Owen) is a large subject, very well treated.

In the portion of the volume concerned with abdominal surgery are articles on technique, abdominal wall, peritoneum, liver, stomach, &c. To this section the brothers Mayo contribute the chapter on the liver, gall-bladder, and biliary ducts. We need hardly say that this chapter is full of information, presented in a most interesting manner.

It is not possible for us to note extensively the contents of the volume, but we find that it is a worthy continuation of the series, and we consider that no surgeon can afford to be without it.

Hints to Ship Surgeons. By J. F. Elliott, L.R.C.S.I. London: John Bale, Sons & Danielsson, Limited. 1908.

This little book contains much useful and essential information, the most of which would have to be acquired from either some friendly source or from dear-bought experience. The 64 pages have scarcely an unnecessary word—among the items of information being the mode of application for a surgeoncy; proper uniform and outfit, and other preliminaries to sailing; medical routine duties and possible emergencies;

the dealing with alcoholic, venereal, mental, and consumptive cases; amusements, games, and perhaps a death, on board.

Chapter VII is devoted to sea sickness, for the treatment of which different drugs are mentioned. Without mentioning chloretone, our author sums up—"Rest in a prone position in a swinging cot in a darkened cabin, well amidships, away from noise and smells, I have found in obstinate cases to be better than any medicine."

Altogether, the booklet fills a want, and to those interested it will repay a second perusal.

A Text-Book of Pharmacology and Therapeutics. By ARTHUR R. CUSHNY, M.A., M.D. London: Rebman, Limited.

THIS book was written primarily for students who have completed the purely scientific branches of medicine and are beginning their clinical studies, but its scope and thoroughness are such as to render it in this, its fourth edition, a reliable text-book for senior students and practitioners as well. While the author professes to treat his subject from the experimental standpoint, and to base his statements mainly on the results of the laboratory investigator, he does, as a matter of fact, attach due importance to clinical observation also, and the book is valuable, not only as a treatise on theoretical pharmacology, but also as a guide in practical therapeutics.

Of special interest from both these points of view are the articles on skin irritants and counter irritation, on alcohol, on ether and chloroform, on the antipyretics, on the digitalis series, and on arsenic.

A useful feature is the bibliography appended to each chapter, containing references to original papers of importance.

On the Relations of Diseases of the Skin to Internal Disorders. By L. DUNCAN BULKLEY, A.M., M.D. London: Rebman, Limited.

THIS volume contains a series of lectures delivered to physicians at the close of a clinical course on dermatology at the New York Skin and Cancer Hospital. The author felt that during the course so much time had to be spent in dealing with diagnosis and treatment that it was necessary to emphasise in this special way the necessity of paying due attention to internal relations and causes. He examines the relationships of certain cutaneous affections with digestive, excretory, respiratory, nervous, circulatory, and sexual disorders, and also the relation of certain skin diseases with anæmia, malaria, and syphilis, and finally considers the subjects of diet, hygiene, and general therapeutics as related to skin diseases. A wide area of general medicine is thus dealt with, and the result is a monograph full of the interesting and suggestive observations of one who has clearly been at much pains to keep the subject constantly before him. Much good advice is given in the section dealing with diet and hygiene, the importance of the regulation of rest, sleep, clothing, and exercise being carefully emphasised. The volume quite fulfils the intention of the author, and can be heartily recommended for perusal.

Lateral Curvature of the Spine, and Round Shoulders. By ROBERT W. LOVETT, M.D. With 154 Illustrations. London: Rebman, Limited.

No apology for the publication of this work is called for. The subject is one which is full of difficulty, which presents itself in practical form, and which constitutes a constantly recurring stumbling-block, not merely to the general practitioner, but also to the surgeon. Hitherto even orthopedists have not achieved in this country signal success in connection with it. In the compass of 180 odd pages we have here presented to us a very full outline of the anatomy, mechanism, symptomatology, semeiology, ætiology, pathology, occurrence, diagnosis, and prognosis of a most troublesome and frequent condition, and at the same time there is given us by Dr. Lovett a most elaborate, yet concise, account of the most hopeful and promising lines of treatment.

The work is profusely illustrated, and it is put together in a manner which is worthy of much praise. It is eminently readable, and, whatever one's views may be as to the correctness of the reasoning and the justification for the general conclusions, there can be no question as to the care with which the whole argument is worked out. The book is obviously the work of an original thinker, and of an orthopedist whose views are based on careful clinical and experimental observation.

It cannot be too strongly insisted on that, dealing as it does with a subject intrinsically difficult and perhaps even to many devoid of engrossing interest—except from the point of view of the frequency and intractability of the condition—nevertheless the book is so constructed, and its material so treated, as to make its perusal full of pleasure. It is full of interest, and pleasant to read all through.

The 40 odd pages devoted to treatment are well worthy of close study, and particularly those pages devoted to a consideration of the various symmetrical exercises employed in the treatment of scoliosis. These pages, with the excellent line diagrams in illustration, are likely to prove of great value to the surgeon, to the practitioner, and also to the teacher of physical training.

Continental literature and teaching have till recently been considerably in advance of English literature and teaching on this subject. Dr. Lovett's valuable text-book goes far to make good the deficiency which has till now existed in this respect.

Syphilis in the Army. "Syphilis in the Army, and its Influence on Military Service: its Causes, Treatment, and the Means which it is Advisable to Adopt for its Prevention." By Major H. C. French, R.A.M.C. London: John Bale, Sons & Danielsson.

From a perusal of the author's preface, dated October, 1907, we learn that this book is merely an amplification of his former work, and that it attempts to show the detailed working of a preventive medicine problem in the army.

While primarily of interest to medical officers, there is much here which will appeal to civilian practitioners.

The earlier part of the volume deals with administration of venereal diseases, and the author expresses his views regarding the prevention of syphilis, and the disciplinary measures applied to men suffering from venereal diseases.

There are numerous appendices giving statistical information, and showing the procedure to be adopted in service hospitals, with the object of acquiring detailed knowledge regarding the results of treatment.

These more expressly military portions of the book are primarily of interest to medical officers, but they should be digested by all—statesmen and others—who have anything to do with army affairs.

Section III will appeal most directly to civilian practitioners. Here the question of treatment is fully discussed, and although it is not possible in civil practice to have the patient anything like so fully under control, still many valuable hints and suggestions as to treatment will be found in this section.

Major French has produced a valuable piece of work which, if it secures the attention it deserves, should result in untold benefit, not only to soldier and civilian patients, but also to the innocent victims of this foul and widespread malady.

A Text-Book of Special Pathology. By J. Martin Beattie, M.A., M.D., and W. E. Carnegie Dickson, M.D., B.Sc., F.R.C.P. London: Rebman, Limited. 1909.

As an exposition of the Edinburgh teaching of pathology the present work will prove very valuable. The illustrations, which are numerous and excellent, are taken largely from the Edinburgh University Anatomical Museum or from other Edinburgh sources. The two coloured plates of blood are of special excellence.

The subject-matter proper calls for no detailed notice, as it follows well-defined lines throughout. The work cannot, however, pretend to be anything like complete, such important sections as gynæcology and diseases of the eye and ear being omitted. Bacteriology is also entirely eliminated, and it is doubtful if the authors are correct in leaving this important branch untouched upon, although it is quite true, as they state, that it is well dealt with in many excellent text-books now published.

As might have been expected, the work of one of the authors upon the bone marrow is largely drawn upon in the chapter dealing therewith.

The very numerous references to the authors' companion volume on general pathology, while no doubt quite legitimate, rather interfere with the continuity of description in this volume.

Chapter VII, dealing with diseases of the nervous system, is one of the best in the book, and will do much to secure careful reading by those not directly interested in the Edinburgh school.

The illustration on page 346, showing a diagrammatic view of the structure and blood-supply of the kidney, will be found very helpful in following the changes due to disease in the manifold affections of this organ.

Owing to the total exclusion of bacteriology no mention is made of the recent advances in the treatment of disease with relation to the opsonic index and vaccine treatment.

While the photographic method of reproduction of morbid appearances has made great strides in recent years, as shown by the majority of illustrations appearing in the present work, there is still a field for line drawings and woodcuts; as an illustration of this point there can be no doubt that Fig. 70, page 240, showing a complete transposition of viscera, would have been better rendered by one of the older methods.

The publishers have done their part well, and the book is in this respect above criticism.

Therapeutische Leistungen, ein Jahrbuch für praktische Aertze. Bearbeitet von Dr. POLLATSCHEK und Dr. NADOR. Wiesbaden: J. F. Bergmann. 1907.

THE eighteenth annual issue of this well-known year book does for German medicine what publications like the *Medical Annual* do for medicine in this country. It affords a very exhaustive review of medical literature for the previous year, and although in the index of authors German names are naturally predominant, it is pleasant to see that English authors stand second on the list. The work of abstraction has been carefully done, and the alphabetical arrangement, which gives the volume the form of a condensed encyclopædia, facilitates reference. To those familiar with the German language it will form a useful index of contemporary practice on the Continent.

Mental Deficiency (Amentia). By A. F. TREDGOLD, L.R.C.P. Lond., M.R.C.S. Eng. London: Baillière, Tindall & Cox. 1908.

THE subject of the volume is defined as "that state in which the mind has failed to attain normal development."

The incidence of amentia in its different degrees in this country, based upon the reports of the Royal Commission (appointed in 1904) on the care and control of the feeble-minded, is shown. In dealing with the causation of amentia, the author gives, we think wisely, the results of his own investigations of the subject, comprising some 250 cases of mental deficiency. His conclusions differ in some respects from those of other investigators, but there can be no doubt that they are the outcome of a very painstaking and searching inquiry, and of a careful and discriminating analysis of the facts ascertained. The etiological factors are intrinsic and extrinsic. The former comprise hereditary influences, and give rise to mental deficiency, which is designated *primary;* the latter are environmental—acting before, during, or after birth, the resulting amentia being *secondary*. The part that morbid heredity plays as an etiological factor of prime importance is graphically shown; it existed in over 80 per cent of the author's cases.

The hereditary influences of alcoholism, tuberculosis, syphilis, consanguinity, and age of parents are discussed. There is a short account of the development of the normal brain, and of the pathology of amentia—primary and secondary. Then follows a classification of the forms, degrees, and types of amentia, and thereafter the physical, nervous, and mental characteristics of aments are fully dealt with. The three degrees of amentia—feeble-mindedness, imbecility, idiocy—are next considered, separate chapters being devoted to the subject of feeble-mindedness in children and in adults. In the former, the scholastic acquirements of different grades are given, as well as the differential diagnosis between feeble-mindedness on the one hand, and backwardness, delayed mental development, and dulness due to disease, on the other. The clinical varieties of primary amentia and its complications, and of secondary amentia, and a description of cases of irregular mental development—the so-called *idioto savanto*—occupy the next three chapters. Three subsequent chapters are devoted to the ament considered as a member of the community. As ascertained from the reports of the Royal Commission, a large proportion of them are paupers, and a few are vagrants, while a considerable proportion are inadequately controlled or cared for.

Figures that are given regarding the propagation of aments are astounding. As a result of the author's own investigations in Somersetshire, it was found that 61 out of 167 of the feeble-minded women in that area had given birth to children to the number of 158—78 of whom were illegitimate. Of the 80 legitimate offspring, only 17 had attained average mental and bodily health. The author suggests, in dealing with the subject of habitual or instinctive criminals, that these are probably cases of mild amentia. Lastly, criminal aments and insane aments are dealt with. Notes of typical cases are frequently given throughout the book, and there is a large number of excellent photographs.

Diagnosis, prognosis, treatment, and training form the subjects of the closing chapters. The author emphasises the importance of proper training begun early, and of the subsequent supervision of aments. To prevent their propagation, he looks ultimately—and we hope he will not look in in vain—to the conscience of the community enlightened by the Church and the medical profession.

In the appendices are given (1) a table of normal developmental data; (2) the method of estimating the total number of aments in England and Wales: and (3) the law of England concerning amentia.

Perhaps enough has been said to commend this volume to the profession. It is all very readable, and the importance of the subject should secure for the book a wide circulation. The results of the author's investigations regarding the etiology of amentia cannot be too widely known, nor can the necessity that obviously exists for measures to prevent its propagation.

Physical Diagnosis. By HOWARD S. ANDERS, A.M., M.D. London: Sidney Appleton. 1907.

THERE are now so many excellent books on physical diagnosis for the student of medicine to choose from that one cannot but admire the courage of the author who ventures to publish yet another. In this case, however, the venture is fully justified, for Dr. Anders has given us one of the best works on the subject that we have yet seen.

The book deals only with the physical examination of the chest and abdomen, and its general plan of treatment is along familiar lines. But special attention is paid to "technical practice and precision" in carrying out the various methods of examination, and the attempt is always made to explain the physics of the physical signs, and to correlate them with the exact morbid conditions by which they may be produced. There are 88 illustrations in the text, as well as 32 plates, and these greatly aid in the elucidation of the subject-matter. A section of the book is devoted to the use of the Röntgen rays in medical diagnosis, and this contains numerous photographs illustrating various lesions in the chest and abdomen.

If we have a fault to find it is with the author's English. The style of expression is often clumsy, and harsh-sounding words are used where more euphonious terms would do equally well. The sentences, too, are frequently unnecessarily long. These defects lessen one's pleasure in the book and certainly make the reading of it more laborious.

Second Annual Report of the Henry Phipps Institute for the Study, Treatment, and Prevention of Tuberculosis. Philadelphia.

THIS report of the second year's work of the Henry Phipps Institute is, like the first report, a most admirable publication. It again deals in an exhaustive manner, not only with the clinical aspects of the cases admitted to the institute during the year, but also with the *post-mortem* findings in the 88 cases that died in that time. These autopsy reports are particularly interesting, and constitute a very complete study of the pathological anatomy of the various tissues in tuberculosis. The serum treatment, too, is considered in detail, and this includes an historical review of the serum-therapy of tuberculosis since 1886, when Cantani employed inhalations of cultures of "bacterium termo." Maragliano's serum treatment is described, as also Marmorek's, but judgment as regards the use of these is reserved till a more exhaustive trial has been made. This report, to any one interested in the pathology and treatment of tuberculosis, is full of valuable information, and we have pleasure in recommending it to our readers.

Climatotherapy and Balneotherapy. By Sir HERMANN WEBER, M.D., F.R.C.P., and F. PARKES WEBER, M.D., F.R.C.P. London: Smith, Elder & Co. 1907.

THIS volume forms a new edition of two other books, namely, *Spas and Mineral Waters of Europe* and *Climatotherapy.* It also contains additional matter drawn from the published papers of one or other of the authors. In spite, however, of its somewhat varied origins, the book shows but little signs of patchwork, and in its present issue it gives us a very complete account of the climates and health resorts of Europe and North America.

The subject is dealt with under three different sections. The first of these is entitled "Climatotherapy and Climatic Health Resorts," and it contains brief descriptions of all well-known health resorts. The following will serve as illustration:—"Rothesay (latitude 55° 50′ north), in the island of Bute, is a favourite summer resort of this region; often crowded owing to the facility for one-day excursions. It has a moist, equable climate, with a mean temperature for the three summer months of about 58·1° F.; and for the three winter months of 39·3° F.; annual rainfall, about 40 inches. As a winter resort its cloudiness and absence of sunshine are disadvantages, and it is too moist for most invalids, excepting some of those with chronic bronchitis."

The second section deals with "Balneotherapy and Mineral Water Health Resorts," and the third with "Indications for treatment—the use and selection of climates, mineral waters, and health resorts in chronic diseases and morbid conditions."

Much of the book is naturally more for reference than for consecutive reading, but the introductions to each of the three sections will well repay careful consideration, as they are concerned chiefly with principles of treatment.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

MEDICINE.

Severe Infantile Paralysis of Right Lower Extremity, with Recovery of Power and Substance in Quadriceps after Twelve Years' Atrophy. By T. H. Openshaw, C.M.G. (*Proceedings of the Royal Society of Medicine*, Clinical Section, 11th December, 1908).—The patient, a male, aged 18, was the subject of severe infantile paralysis of the right leg sixteen years ago. For eleven years there was not the least power to extend the knee. There was a marked talipes valgus, with atrophy of the extensors and flexors of the ankle and of the quadriceps, and contraction of the peronei. He has worn instruments all his life, at first up to the pelvis, but latterly only up to the knee. In 1902 the peroneus brevis was transplanted into the tibialis posticus with marked improvement of the valgus. At that time he had no power of flexion or extension of the ankle, but this power has gradually been returning. At the present time he has quite a fairly developed quadriceps with power of extension of the knee, and this has occurred during the past four years. Knee-jerks are both present, the right a little less marked than the left.

The author thinks the recovery is to be attributed to the early use of instrumental support, thus allowing the patient to get erect upon his feet as early as possible.—GEO. A. ALLAN.

SURGERY.

The Operative Treatment of Ascites due to Hepatic Cirrhosis. By Bogojawlensky (*Zentralblatt für Chirurgie*, February, 1909).—The operation of "omentopaxy," it is acknowledged, has been almost entirely given up by most surgeons as a cure for ascites due to hepatic cirrhosis. The results that were predicted have not been fulfilled, notwithstanding the fact that various methods have been tried as to where and how the omentum should be stitched. Bogojawlensky is of the opinion—from a careful study of ten cases in which he has performed the operation as described by Talma—that the improvement which undoubtedly takes place in some cases is due chiefly to the laparotomy and handling of the peritoneum, visceral and parietal, and not to the establishment of new circulatory anastomosis. In support of this theory he gives the following notes from several cases:—

1. The patient, a woman, æt. 28, had suffered from ascites for ten months, during which time the free fluid had been drawn off by trocar ten times without permanent result. On opening the abdomen he found that the liver was cirrhotic, that there was no evidence of tuberculosis, and also that the omentum was adherent to the anterior abdominal wall ("nature" having thus anticipated the surgeon!) The fluid having been completely removed, the abdomen was closed. The patient is now, two and a half years after the operation, well, the ascites being completely absent.

2. Talma's operation was performed on a man, æt. 53, from whose abdomen, during the previous twelve months, very large quantities of fluid had been drawn off on twenty-four occasions. In the few weeks preceding the operation the quantities drawn off had been immense, the abdomen filling up rapidly every three days. After the operation no fluid accumulated, although, as he points out, new anastomoses could not form in a day.

3 and 4. In two other similar cases the free fluid was removed, after laparotomy without omentopaxy, with perfect results.

In these cases—in fact, in all the ten cases on which he operated—the hepatic cirrhosis was well marked, not simply a perihepatitis chronica hyperplastica.

Bogojawlensky then proceeds to examine in detail the possible reason for these good results following simple laparotomy with removal of the fluid. His theory is that in cases of hepatic cirrhosis the cause of the free fluid is to be found not so much in the mechanical obstruction to the hepatic circulation as in the chronic inflammation set up in the peritoneum by the toxins circulating through it. The result of the handling of the intestines and evacuation of the fluid is a slight hyperæmia, which can be increased by gently rubbing the peritoneum with gauze wrung out of normal saline solution. He does not, however, deny that the adhesions between the omentum and the abdominal wall may be useful to the patient in the future, as new vessels undoubtedly are formed there in time, and will help in the removal of the fluid. He points out, also, that the operation is extremely fatal in cases in which there is renal as well as hepatic cirrhosis, owing to the tremendous amount of toxins which is thrown into the circulation when the peritoneum has resumed its absorbing powers.—Robert B. Carslaw.

PATHOLOGY AND SERUM DIAGNOSIS.

Archivos do Real Instituto Bacteriologico Camara Pestana (Tome ii, fascicules i and ii. Lisbon, 1908).—These parts of this journal contain a large number of original papers embracing a wide variety of subjects of biological interest, comprising bacteriology, parasitology, pathological anatomy, hygiene, &c. The matter is of great interest, and the editors are to be warmly complimented on the form in which it is presented as well as on the excellence of the accompanying illustrations.

From among the contents we may mention as of highly practical importance the work of N. Bettencourt and Regalla (fasc. i) on blood-cultures in the diagnosis of typhoid fever. Following Kayser's method, they inoculated flasks containing 50 c.c. of sterilised ox-bile with 1 to 2·5 c.c. of the patient's blood. The mixtures were then incubated for twelve to twenty-four hours at 37° C., and from them cultures were made on Drigalski Conradi plates. In case this subinoculation was negative, repeated subcultures were made from the bile-blood mixtures up till the sixth day of incubation. If organisms are not recovered by this time the cultures will probably remain sterile. Out of 45 cases of enteric fever the bacillus typhosus was isolated 37 times (82·3 per cent). It is an important fact from the point of view of diagnosis that of 11 cases examined *in the first week* of illness *the bacillus typhosus was isolated in every instance, i.e.*, at a period before the Widal reaction is positive as a rule.

In a paper on the sero-diagnosis of syphilis (fasc. ii) C. França adds to his own observations on this subject a comprehensive *résumé* of the literature, and also shows by a number of interesting examples how the biological test served to clear up a doubtful clinical diagnosis.—Carl H. Browning.

Serum Diagnosis of Syphilis. By William J. Butler, M.D., Chicago (*Illinois Medical Journal*, December, 1908).—From the results of over 100 cases personally investigated, and a study of the results of other observers, the author draws the following conclusions:—

1. The serum reaction for syphilis is specific.
2. It is found positive in from 90 per cent to 98 per cent of all cases with syphilitic manifestations.
3. It is found positive in from 50 per cent to 60 per cent of latent cases.
4. It is found positive in from 70 per cent to 80 per cent of meta- and para-syphilitic diseases.
5. The reaction is in many cases influenced by treatment (confirmed by Lesser, who found that in every case treated long enough the reaction disappeared).
6. A positive reaction indicates activity of the specific virus, and is an indication for anti-syphilitic treatment.
7. While a positive reaction indicates syphilis, a negative reaction does not have an equal negative value.
8. It is diagnostic of a systemic infection, whether acquired or inherited, and not an organ diagnostic measure.
9. The reaction will be found of enormous advantage in differential diagnosis in every department of medicine and as an index for treatment.

Also, compared with the Porges and Klausner reactions, he found that the Wassermann reaction gave a greater number of positive results.

—Geo. A. Allan.

The Serum Diagnosis of Syphilis. By Frederick P. Gay, M.D., and J. G. Fitzgerald, M.D. (*Boston Medical and Surgical Journal*, 11th February, 1909).—This paper deals with a comparison of certain recent methods for the diagnosis of syphilis. It is based on an examination of the blood-serum from 38 cases of definite syphilis and 34 cases with no history of syphilis, and of the cerebro-spinal fluid from 12 cases of definite syphilis and 26 cases without syphilitic history. They draw the following conclusions:—

1. A positive reaction (Wassermann method) with blood serum or cerebro-spinal fluid is diagnostic of syphilis, but a negative reaction, particularly in the tertiary stage, is of little absolute value.
2. The Wassermann reaction is usually present in secondary syphilis and less frequently in tertiary and para-syphilitic conditions, probably due to the effect of treatment.
3. Noguchi's method for globulins, or the englobulin method (the authors' modification of Noguchi's method), is positive in practically every case of positive syphilis; but its diagnostic value is limited, as it is also obtained in the majority of sera from acute infectious diseases, although apparently never in other conditions.
4. The Noguchi method for cerebro-spinal fluid gives positive results in syphilitic meningeal complications in many more cases than does the Wassermann reaction, but fails to give the reaction if meningeal complications are absent. It may be a useful adjuvant in the differential diagnosis of general paresis.
5. It seems that the Noguchi method of syphilis diagnosis, whereas of distinct corroborative value, and, under certain limitations, of positive value in syphilis, cannot replace the more complicated Wassermann reaction.

—Geo. A. Allan.

The Position of Serum Diagnosis in Syphilis. By Prof. F. Micheli and Dr. L. Borelli (*Pathologia*, Genoa, January and February, 1909). —In the light of their experiments on serum taken from 244 cases of various diseases, syphilitic and other, the writers proceed to estimate the value of Wassermann's reaction, both as regards its specificity for syphilis in the strictly biological sense, and as regards its employment clinically as an aid to diagnosis in that disease.

Reviewing the history of the reaction from the time when Wassermann from large statistics affirmed in the German Congress of Medicine (Vienna, 1908), that in non-syphilitic cases the percentage of negative reactions was 100, they recognise that much doubt has since been thrown upon the reaction as regards its biological specificity at least. Many investigators have obtained positive results with watery and alcoholic extracts from various organs, human and animal, normal and pathological, as well as with solutions of non-vital substances, such as lecithin, glycocholate of sodium, and oleate of sodium. In view of this, it cannot be maintained that the reaction of Wassermann, unlike others of its class, is a true specific reaction competent only to take place between a known antigen and its own corresponding anti-bodies, but is a phenomenon, *sui generis*, the intimate biochemical basis of which remains still to be explored. Evidence has also been adduced by various workers tending to diminish even the value of the reaction in the clinical sphere, positive results having been obtained from serum in cases of pulmonary tuberculosis, leprosy, scarlet fever, malaria, framboesia tropica, sleeping sickness, &c. In considering, however, clinical specificity, the writers desire to exclude the last three, as belonging to a group of diseases sufficiently resembling syphilis in that they are parasitic in origin, and in which many of the molecular tissue changes involved may not improbably be identical with those resulting from the activity of the syphilitic virus, be it the "spirochæta pallida." With these limitations, then, they proceed to examine the proposition that Wassermann's reaction is only provided by syphilitic serum. The following abridged table indicates the scope and result of their work :—

	Total.	Positive.	Negative.
Secondary syphilis with active manifestations,	28	26	2
Syphilis under 4 years' standing without active manifestations, ...	13	6	7
Tertiary syphilis with active manifestations,	18	16	2
,, ,, without ,, ,,	8	3	5
Tabes dorsalis, ...	4	2	2
Cases of doubtful syphilis, ...	16	5	9

187 cases of various diseases were also examined, with negative result, except one case each of :—

	Total.	Positive.	Negative.
Scarlet fever, ...	11	1	10
Malaria, ...	12	1	11
Pulmonary tuberculosis, ...	30	1	29

Reactions are regarded as positive when complete or almost complete inhibition of hæmolysis occurs, and negative when hæmolysis is energetic or only partial.

In none of these three cases could any history or clinical evidence of syphilis be obtained. The case of phthisis was a man of 37 years, in the second stage of the disease. His serum on two occasions gave complete inhibition of hæmolysis; on a third examination inhibition was incomplete; the dose necessary was ·1. The case of malaria was a man of 47, suffering from "hepato-splenomegalia." Examined frequently, his serum showed powerful inhibitory action, in doses of ·002 and ·003.

The instance of scarlet fever providing positive reaction was that of a boy of 15 years, convalescent on the thirty-third day of the disease: complete inhibition took place with a dose of ·1. In this relation attention is called to the frequency with which positive results have been obtained by various investigators—Zeissler being quoted as obtaining 3 in 42 cases; Halberstäder, E. Müller, and Reiche, 5 in 10; and Fränkel and Much, 5 in 12; while, on the other hand, numerous others are mentioned whose results are entirely negative. Some difficulty is admitted in explaining such divergency, although difference in technique, in the character of the epidemics examined, and in the behaviour of different extracts towards the scarlatinal serum, are mentioned as possibly affording some explanation. The fact, however, does not seriously militate against the clinical value of the reaction in question, and as regards limiting and defining its absolute specificity, arguments taken from a disease whose causal agent is unknown must be accepted with reserve.

With the view of focussing their clinical facts, percentage figures of their cases of ascertained syphilis are given thus :—

	Positive Wassermann.
Secondary active syphilis, ...	92·8 per cent.
Tertiary active syphilis, ...	88·9 ,,
Latent syphilis (early), ...	46 ,,
Latent syphilis (late), ...	37·5 ,,

Results of numerous other writers are given, showing roughly a percentage of positive reactions in active syphilis ranging round 90, and in the latent stage below 50. This they adduce as strong clinical evidence demonstrating the close relationship existing between the activity of the syphilitic virus and the frequency of obtaining the positive reaction. They conclude from this "that whatever be the nature of the reacting substances in luetic serum, they exist, up to a certain point, in direct proportion with the activity and quantity of the virus."

In connection with their results in cases of latent syphilis (cases, that is, of known or admitted syphilis in which clinical evidence of such can not be found), they quote from another source facts which seem to be parallel in an interesting way. Statistics given by F. Lesser of autopsies on syphilitic subjects, in whom the disease was clinically latent, show that in 50 per cent of these, syphilitic manifestations, more or less active, are found in various organs, viz., lungs, liver, heart, or testicle; and, again, Chiari has found that in such subjects "proliferative mesaortitis" exists in the same proportion. In general, the conclusion to which these figures point is, that Wassermann's reaction may be held to indicate a period of activity of the syphilitic virus.

Much support is given to the specificity of the reaction by its behaviour in individual cases of syphilis under treatment by mercury, when a gradual diminution of the inhibitive power of the serum may be observed, even to its complete disappearance. Similar bearing, also, have those cases reported by Fleischmann and others, where negative results were replaced by positive on the appearance of active signs of the disease.

Enough has been said to establish the value of the reaction from the diagnostic point of view at least; it has, moreover, a value from the therapeutic and prognostic aspects. Of special importance is it as a means of gauging the effect of therapeutic reagents, and, in cases apparently latent, of anticipating the outbreak of clinical activity in the disease, an indication which may be of importance in preventing the establishment of those late and often intractable conditions resulting from luetic infection.

The high percentage of positive results obtained by authors in syphilitic disease of the central nervous system indicates the value of the procedure in the diagnosis of all cases of progressive paralysis, in which a negative reaction obtained would go far to exclude syphilis as an etiological factor; and it is here incidentally noted that if these observations are correct, the idea involved in the terms meta- or para-syphilitic as applied to tabes dorsalis and dementia paralytica stands in need of revision.

A further application of the test is afforded by conditions of "proliferative aortitis," aneurism, and aortic insufficiency. Citron has obtained positive Wassermann in 62·6 per cent of all cases of the last-named examined by him, and regards syphilis as an important factor in its causation.

They conclude with the view that much can be said in support of the clinical specificity of Wassermann's reaction, and incline to regard as its most useful sphere of application, those cases of syphilis apparently latent, which are hereby declared to be active.—A. Matheson.

On the Etiology of Scarlet Fever. By Prof. Spiro Livierato (*Pathologia*, Genoa, December, 1908).—The author gives the result of observations on 18 cases of the above disease, made in the course of general investigation into the etiology of the exanthemata. His mode of procedure is determined by the fact that hitherto all attempt to elucidate the question by way of the direct bacteriological methods has failed; he therefore approaches the matter obliquely, postulating certain infective agents, and proceeding to determine whether or not there exist in the blood serum of scarlatinal patients corresponding specific anti-substances. Experimenting with the following micro-organisms—streptococcus pyogenes, staphylococcus aureus and albus, diplococcus of Fränkel, typhoid bacillus, bacillus of influenza, bacillus coli, and micrococcus tetragenes he enquires as to whether or not any or one of these acting as antigen can determine the fixation of complement in the presence of the serum in question. Sterile watery emulsions of the organisms are made from twenty-four hours' culture on agar, and in the case of the streptococcus two types are employed, one a virulent specimen from a case of mixed diphtherial infection, the other taken from a case of erysipelas of the face.

In the matter of technique, he follows that of Bordet and Gengou. The alexin, emulsion of culture, and serum are introduced into tubes. These, after being well shaken, are left at a temperature of 37° C. for three hours, when the hæmolytic mixture is added, and in other three to five hours the positive or negative nature of the reaction is determined. All the above micro-organisms are in rotation subjected to the test, those reactions only being accepted as positive in which complete inhibition of hæmolysis occurs.

Briefly, the result is that with either of the types of streptococcus acting as antigen absolute inhibition of hæmolysis occurs, whereas in the case of the other organisms the normal process of hæmolysis is unaffected. He therefore concludes that there exist in the scarlatinal serum substances behaving towards the streptococcus in a manner strictly specific. These observations, he holds, substantiate in a valuable way the researches of Babés, Kurth, Merignac, and others who arrived at the streptococcal origin of the disease by the direct bacteriological route.—A. Matheson.

On the Origin of the Plasma Cells. By Ettore Savangone (*Pathologia*, Genoa, January, 1909).—In a brief *résumé* anticipating the publication of more extended observations, the writer describes appearances in cellular elements met with in sections from cases of syphilitic hepatitis. The preparations were stained by the Unna-Pappenheim method (carbol-methylgreen-pironin). In such sections the noticeable feature was the presence of a large quantity of corpuscles of varied form and dimension, the protoplasm of which was stained a deep red, and whose nucleus, spherical and for the most part eccentrically placed, possessed a distinct limiting membrane, on the inner wall of which were to be found large and irregular granules of chromatin, giving to the nucleus the characteristic appearance of a wheel. These corpuscles, showing by their morphological features and their staining reaction the typical properties of the "plasmazellen" of Unna, were found mostly collected in the close vicinity of blood-vessels and even of the biliary canaliculi, in both of which situations they adhered closely to the wall of the vessel. There were also to be seen other cells, some more or less oval, and others elongated or even fusiform, especially in the neighbourhood of connective tissue elements, and not a few could be recognised as resembling the "tochterplasmazellen" of authors. It is noted that, while numerous foci existed showing a mixture of such plasma cells and lymphocytes, each type could be found in foci to the exclusion of the other.

Two conclusions are drawn from such appearances—(1) that in the connective tissue are to be seen cellular elements intermediate between the typical plasma cell and the connective tissue corpuscle, in that, while preserving the elongated form of the latter, they possess the pironophile properties of the former; and (2) that one finds in the vicinity of the smaller vessels cells with pironophile cytoplasm, which at the same time retain a strong morphological resemblance with the connective tissue elements of the adventitial coat, which seems to demonstrate the transformation of the latter into true "plasmazellen" of Unna.—A. Matheson.

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Movable Kidney, by C. W. Suckling, M.D.Lond., M.R.C.P. Birmingham: Cornish Brothers. 1909. (5s. net.)

Operative Nursing and Technique, a Book for Nurses, Dressers, House Surgeons, &c., by Charles P. Childe, B.A., F.R.C.S.Eng. London: Baillière, Tindall & Cox. 1909. (3s. 6d. net.)

Differential Diagnosis of Bacteria and Practical Bacteriology, by E. P. Minett, M.D., D.P.H., M.R.C.S. London: Baillière, Tindall & Cox. 1909. (2s. 6d. net.)

Suture of Arteries, an Experimental Research, by E. Archibald Smith, M.B., Ch.B. London: Henry Frowde and Hodder & Stoughton. 1909. (2s. 6d.)

Aids to Medicine, by Bernard Hudson, M.D.Camb., M.R.C.P.Lond. London: Baillière, Tindall & Cox. 1909. (3s. net.)

The Influence of Heredity on Disease, with special reference to Tuberculosis, Cancer, and Diseases of the Nervous System, a Discussion opened by Sir William S. Church, Bt., K.C.B., M.D., Sir William R. Gowers, M.D., F.R.S., Arthur Latham, M.D., and E. F. Bashford, M.D. London: Longmans, Green & Co. 1909. (4s. 6d. net.)

A Manual of Operative Surgery, by Sir Frederick Treves, G.C.V.O., C.B., LL.D., F.R.C.S., and Jonathan Hutchinson, F.R.C.S. Third edition. With new coloured plates and many new illustrations in the text. In two volumes. Vol. I. London: Cassell & Co., Ltd. 1909. (18s. net.)

A History of the Reading Pathological Society, by Jamieson B. Hurry, M.A., M.D. With illustrations. London: John Bale, Sons & Danielsson, Ltd. 1909. (7s. 6d. net.)

The Surgery of the Ear, by Samuel J. Kopetzky, M.D. Illustrated with 63 half-tone and line drawings, 8 charts, and 4 coloured plates. London: Rebman Limited. (16s. 6d. net.)

Essentials of Medicine, a Text-Book of Medicine for Students beginning a Medical Course, for Nurses, and for all others interested in the Care of the Sick, by Charles Phillips Emerson, M.D. Philadelphia and London: J. B. Lippincott Company. (8s. 6d. net.)

Appendicitis and other Diseases of the Vermiform Appendix, by Howard A. Kelly, M.D. With 215 original illustrations, some in colours, and 3 lithographic plates. Philadelphia and London: J. B. Lippincott Company. (25s. net.)

Severest Anæmias: Their Infective Nature, Diagnosis and Treatment, by William Hunter, M.D. Edin., F.R.C.P. Vol. I. With historical schemes, charts, and plates. London: Macmillan & Co., Limited. 1909. (10s. net.)

Home Nursing, with Notes on the Preservation of Health, by Isabel Macdonald, Cert. Roy. Inf. Edin., M.R.B.N.A., A.R.San.I. London: Macmillan & Co., Limited. 1909. (2s. 6d. net.)

The Student's Pocket Prescriber, by H. Aubrey Husband, M.B., C.M., B.Sc., F.R.C.S.E., M.R.C.S. New edition. Edinburgh: E. & S. Livingstone. 1909. (1s. 6d. net.)

Lectures on the Use of Massage and Early Movements in Recent Fractures and other common Surgical Injuries, Sprains and their Consequences, Rigidity of the Spine, and the Management of Stiff Joints generally, by Sir William H. Bennett, K.C.V.O., F.R.C.S. Fourth edition. With 23 illustrations. London: Longmans, Green & Co. 1909. (6s.)

Transactions of the College of Physicians of Philadelphia. Third series. Vol. XXX. Philadelphia: W. J. Dornan. 1908.

The Operative Treatment of Chronic Constipation, by W. Arbuthnot Lane, M.S., F.R.C.S. London: James Nisbet & Co., Ltd. 1909. (2s. 6d. net.)

Parcimony in Nutrition, by Sir James Crichton-Browne, M.D., LL.D., F.R.S. London and New York: Funk & Wagnall's Company. 1909. (3s.)

Manual of Operative Surgery, by John Fairbairn Binnie, A.M., C.M.Aberd. Vol. I: Operations on the Head, Neck, Nerves, Trunk, Genito-Urinary System. Fourth edition, revised and enlarged. With 713 illustrations, a number of which are printed in colours. London: H. K. Lewis. 1909. (14s. net.)

Publications of the Research Defence Society (March 1908—March 1909), selected by the Committee. London: Macmillan & Co., Limited. 1909.

GLASGOW.—METEOROLOGICAL AND VITAL STATISTICS FOR THE FOUR WEEKS ENDING 24TH APRIL, 1909.

	Week ending			
	April 3.	April 10.	April 17.	April 24.
Mean temperature, . .	39·1°	46·6°	46·9°	49·9°
Mean range of temperature between day and night, .	18·6°	34·8°	18·0°	23·2°
Number of days on which rain fell, ...	5	0	5	4
Amount of rainfall, . ins.	0·74	0·00	1·09	0·59
Deaths registered, . . .	360	327	323	290
Death-rates, ...	21·5	19·6	19·3	17·4
Zymotic death-rates, . .	2·7	3·1	3·5	1·9
Pulmonary death-rates, .	7·2	5·0	5·9	5·0
DEATHS—				
Under 1 year, . . .	73	75	59	50
60 years and upwards, .	95	80	80	86
DEATHS FROM—				
Small-pox, ...	...	...	...	...
Measles, ...	...	...	1	...
Scarlet fever, ...	4	3	4	2
Diphtheria, ...	6	4	4	3
Whooping-cough, . .	32	42	44	22
Fever, ...	...	4	4	4
Cerebro-spinal fever, . .	3	2	...	...
Diarrhœa, ...	8	8	11	6
Croup and laryngitis, .	...	...	2	...
Bronchitis, pneumonia, and pleurisy, ...	93	58	67	61
CASES REPORTED—				
Small-pox, ...	...	...	...	...
Cerebro-spinal meningitis, .	3	2	1	5
Diphtheria and membranous croup, ...	29	32	36	32
Erysipelas, ...	28	18	26	15
Scarlet fever, ...	51	53	88	80
Typhus fever, ...	...	...	...	...
Enteric fever, ...	17	15	9	14
Continued fever, . . .	...	1	...	...
Puerperal fever, . . .	1	4	1	2
Measles,*	87	71	67	107

* Measles not notifiable.

SANITARY CHAMBERS,
GLASGOW, *28th April, 1909.*

THE

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ORIGINAL ARTICLES.

REPORT ON THE STATE OF EDUCATION IN BRITISH AND IRISH SCHOOLS FOR THE DEAF.

By JAMES KERR LOVE, M.D.,

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Two years ago the writer, under the title "The Study of the Deaf Child," published in the pages of the *Glasgow Medical Journal* a research on deaf-mutism, conducted under the auspices of the Carnegie Trustees, and in the preface to that research he indicated that a report would shortly be made on the state of education in British schools for the deaf. The following paper is therefore to be regarded as a continuation of "The Study of the Deaf Child," and also as a continuation of the research on deaf-mutism conducted under the same auspices.

The first public school in this country for the deaf and dumb was founded in 1792 at Old Kent Road, London, and was called the British Asylum for the Deaf and Dumb. It was preceded by thirty-two years by the school in Paris founded by the Abbé de l'Epee, the first public institution of the kind in the world, and between 1760 and 1792 only four other schools came in being for the public education of the deaf—one at Vienna, founded in 1779; one at Meersburg, Baden, founded in 1783; one at Bordeaux, in 1786; and one at Berlin, in 1788. In Scotland the first public school was founded in 1810 at Henderson Row, Edinburgh. A private boarding school was established in Dublin in 1816, but the first public institution in Ireland was that in Belfast founded in 1831.

Previous to 1792 Thomas Braidwood had for many years conducted, first in Edinburgh and then in London, an academy for the instruction of the deaf. Not only was Braidwood's school a private one, but he kept his methods secret. Braidwood was much in the position of the proprietor of a modern patent medicine, and although one would not judge him entirely by present-day standards, he can never have the place in the history of the education of the deaf which might have been his. Braidwood's nephew, Joseph Watson, however, learned his methods, became the first headmaster of the Old Kent Road Asylum, and gave in 1809, just one hundred years ago, the first work in English which had been written on the education of the deaf for one hundred and thirty years.

Three aspects of the public instruction of the deaf as conducted one hundred years ago at the British Asylum may be noticed—

1. The origin and control.
2. The extent and nature of the education.
3. The method employed.

These aspects will be presented here as they appear in Dr. Watson's work written in 1809; afterwards the present state of education in our country will be reviewed, and three movements corresponding to the three aspects above noted will be considered—

1. The movement from charity and the institution to State control, and to the establishment of day schools for the deaf.
2. The movement towards the full equipment of the deaf for an independent position in the hearing world.
3. The movement towards a scientific classification and a discerning application of the various methods.

1. *The origin and control of public instruction of the deaf.*—Dr. Watson says, "The hand of public charity has done in Britain what it required the munificence of kings and

emperors and the act of a legislature to do in foreign countries—provided for the gratuitous education of the *indigent* deaf and dumb."

At the opening of the institution in 1792 there were six children: at the time of writing the above (1809) there were "near 70," with more than the number actually received on the list as expectants.

The Abbé de l'Epee's school, like the Old Kent Road Asylum, was started as a charity, the good Abbé being both the benefactor and the teacher, but it is somewhat characteristic of French as against English methods that whereas the Abbé's school was taken over by the Government and became the national institution of Paris in 1791, the British Government took no responsibility for the education of the deaf for nearly one hundred years afterwards.

Although the term "asylum" summed up, one hundred years ago, pretty well the public conception of the capacity of the deaf child, Dr. Watson had a very high conception of the nature of his work. He refers to "that prejudice which has so long consigned the deaf and dumb to the class of semi-rationals in the estimation of the majority of mankind." His own ideas appear in the following extracts, "Give them language and you in a great measure do away with their defect and bring them on a level with those of their age and station in life." Referring to his own method of education, he says, "If the method I have endeavoured to explain be duly acted upon, there will be no room to complain of want of success." Watson evidently knew what the deaf were capable of, and had entire faith in his method. The origin and control of the education of the deaf in Britain was charitable, and for one hundred years this type was wholly adhered to.

2. *The extent and nature of the education.*—Watson's course extended for five years (from 9 to 14 years of age). He commends the preliminary education of the deaf and dumb (up to 9 years) to ladies of fortune and leisure when the parents themselves are too ignorant, and then, stating the position of the institution, goes on to say, "The asylum for educating the deaf and dumb children of the poor does not admit any on the charitable foundation till they are 9 years old." The reason for fixing upon this age was not any idea that it was the earliest at which regular education could be advantageously begun. But *five years* being deemed, generally speaking, sufficient to accomplish that course of

instruction thought most essential to such children destined to earn their bread by the labour of their hands, and 14 being the earliest age at which they could be apprenticed, it was judged best for the economical purposes of the institution not to receive them before the age of 9 years." For a finished education, Dr. Watson suggested that a longer time might be necessary, but here is what (after seventeen years' teaching in the asylum) he thinks may be accomplished in five years, "I deem it essential that they should have such a knowledge of language as to enable them to express ideas on common occasions: to understand the commands or directions it may be necessary to give them in ordinary cases, &c.: to read with intelligence the precepts, the examples, and the promises which are contained in the Scriptures, particularly the New Testament: that they should write a good hand, spell correctly the words they use, and understand the principal rules of arithmetic."

"When I say that these requirements may be attained in five years, I mean to state *that* as the shortest time, even where the capacity of the learner is good."

Watson evidently laboured at a disadvantage for lack of funds, just as his successors in this country have done ever since, and as they still do.

3. *The method employed.*—Watson taught deaf and dumb children to speak, and it is well to recall—in view of the popular belief that the oral system is a *recent* importation from Germany—this hundred year old statement of the gifted Englishman, or, rather, Scotsman. "It has been urged that their utterance (that of the naturally deaf and dumb) is monotonous, harsh, and unpleasing to the ear. This, however, is far from being true in every case: for where the organs of speech are perfect, and the voice clear and sufficiently strong, deaf persons may be taught to speak, to read, and to converse *viva voce* in a manner not unpleasing, though, for want of the ear to regulate the tones, there must be a peculiarity in their utterance. Allowance being made for this, it will be found that their speech is in numerous instances abundantly intelligible to all who understand the tongue in which they speak, even to strangers. To those who are in habits of daily intercourse with them it becomes so familiar that it fully answers the leading purposes for which that gift was bestowed on man—the communication of his thoughts. Were the objection valid (that the utterance is hard, &c.), still I could not give up articulation, for, independently of the advantages

they derive from it as members of the community, they derive great and incalculable benefit from it as individuals, so highly is it useful as a medium in the attainment of an important end—the acquisition of language." Why was this ideal lost in this country? Why, between the year 1809, when Watson wrote the above, and the middle of the nineteenth century, had efforts to teach the deaf to speak been practically given up in this country, so completely given up that in 1865 Mr. Van Asch wrote, "The articulation of the deaf and dumb is of rare occurrence in this country;" so completely given up that when oralism was revived here it was called "the German oral system"? The answer to this question is not easy, but it would seem to be the case that teachers like Baker, of Doncaster, and Scott, of Exeter, who led thought in Britain on the subject of deaf-mute education, had ceased to *believe* with Watson that speech is "highly useful as a medium in the attainment of an important end—the acquisition of language."

In spite of Watson's clear statement on the subject, the position he thus takes up as to the value of speech in education, and in spite of the prevalence of much oralism now in Britain, the position he took up requires fresh examination and restatement now.

As secondary causes of the decline from oralism to manualism or finger-spelling, there were two—

(1) Oralism was difficult both for the child and the teacher, and for the first years little but a mechanical result was apparent. In the later years refuge was sought in signs and finger-spelling in order to get language results, which required a larger curriculum and a better staff of teachers than have ever been available for the institutions of Britain. As late as last year I visited a British institution where the highest class was taught manually, although all class work for some years previously had been conducted orally. The teacher considered he got more and better results in this way. The school was not an oral, but a "combined" school.

(2) Another secondary cause was sentimental rather than practical in its nature. The sign and manual method had been conceived by the Abbé de l'Epee unselfishly, and carried out above board. That practised by the Braidwoods in Edinburgh and London was used for their personal and family benefit, and the details of the method were hidden. By the French method teachers saw they could get language without speech, and as the acquisition of speech by the deaf

was always difficult and never perfect, the teaching of it disappeared altogether from the public schools for the deaf.

Watson, quoting from Hartly, lays down this proposition as the basis of his teaching articulation—"Words and phrases must excite ideas in us by association, and they excite ideas in us by no other means," and he draws this inference, "The more numerous the means of association the more perfect the recollection, or, in other terms, the more frequent the recurrence of words and their corresponding ideas to the mind. Thus persons who have all four means—that is, who can hear, speak, read, and write—retain a discourse much better, and have far greater facility in expressing themselves, than persons possessing only two of them—that is, illiterate persons who can hear and speak, but who cannot read nor write. Now, as deaf and dumb persons educated without articulation can only have two of the means—that is, the impressions made upon the eye by characters, and the action of the hand in writing—can it be questioned that we render them an essential service by adding the actions of the organ of speech—a very powerful auxiliary, since by it words become, as it were, a part of ourselves, and more immediately affect us."

I have quoted thus largely from Watson because I do not know any more correct statement of the basis of oral training amongst modern writers, and because such a statement is much needed now; and I am proud to think that my own university had the insight to see the value of this great teacher, and confer on him the degree of Doctor of Laws. In discussing Watson's method thus briefly, it is right to add that he also taught lip-reading to some extent. Probably he depended more on the manual alphabet than some modern oralists do, but he must be claimed as a true oral teacher, as he made speech the instrument of thought with his pupils.

Three great educational movements of the past century.—Looking now to the history of the public education of the deaf, we notice a movement from charity and the institution to State control, and the establishment of day schools for the deaf. After the Old Kent Road Asylum was founded we hear no more in Britain of "asylums" for deaf children. The residential institution became the home of, and the school for, the deaf. True, the first American school, founded in 1816, was called the Connecticut Asylum, and only recently (1895) the title was changed, "The American School at Hartford for the Deaf." But the sentiment regarding the deaf has altered far enough, although slowly, to permit them to rank in the public mind as scholars, and not semi-lunatics. They are still for the most part confined to institutions. The position I wish to make clear here is that, during the first half of the nineteenth century, for a child to be deaf was a sufficient reason for taking him from his home and confining him in an institution. During the period I refer to hardly any protest was offered against the practice, and this is not surprising, for education was so poorly organised that day schools would almost certainly have failed. The nineteenth century was the century of the factory and the growth of great cities, the century of the tenement and of the overcrowding of the poor, and the children were the chief sufferers. During the greater part of it, it had been better for the physical welfare of the children of the more crowded parts of our great cities had all of them, both deaf and hearing, been boarded and educated in institutions. And whilst the conscience of the country seems to be roused, and will not be satisfied till the children's homes are made fit for them to live in, there is in Britain no *general* movement yet for the transference of deaf children from institutions to day schools. The movement towards the day school is closely associated with the recognition by the Government of the right of the deaf child to the same full and free education as is given to the hearing child.

During the first half of the nineteenth century the institution system grew, and, except for a few of the deaf children of the well-to-do who were taught privately, all deaf children who were educated at all were educated in these establishments. All these institutions depended on private charity. No Government aid was given. Between 1860 and 1890 several Bills were passed by Parliament enabling boards of guardians to contribute to the maintenance and education of deaf children in charitable institutions; but it was not till 1890 that an Act was passed for Scotland (for England in 1893) making the education of deaf children compulsory, and laying on school boards the duty of contributing to their maintenance and education. The period of education was fixed to extend from the end of the seventh to the sixteenth year. More recently it has been given to school boards to tax the ratepayer for the *whole cost* of the education of the deaf —in Scotland in 1890, in England in 1907.

In the meantime day schools sprang up in London and various provincial towns, and, according to the nature of the conditions present, have met with varying success. Great progress has been made in the education of the deaf during the last thirty years, and the legislation which has made this progress possible has almost all been founded on the work of a Royal Commission which was appointed in 1885, and which issued its report in 1889.

The second movement is towards the full equipment of the deaf for an independent position in the hearing world. De l'Epee, who founded the first public school for the deaf, had no idea of such full equipment. He did not think such an independent position possible for the deaf. He taught by a system of signs, and in a letter to the Abbé Sicard, his successor, he says, "Do not hope that they may ever be able to communicate their ideas in writing." Watson, who, as we have seen, appreciated de l'Epee's philanthropy, but held a poor opinion of the latter's teaching, set, as we have seen also, to the deaf a much higher standard of attainment. Watson put down five years as the shortest time for these acquirements, even where the capacity of the learner was good. It is doubtful if more is accomplished in five years now, and it is certain that less is in many cases accomplished in the eight years during which deaf children must attend school. On the other hand, with long and patient training even the deaf-born have in many instance attained acquirements compared with which Watson's standard is actually juvenile, but which, with his clear grasp of the problem of the deaf child, he foresaw must come, for he finishes his book thus—"Where the mind is intended to be enlarged by a system of general information and science, a proportionally larger time must necessarily be required for its accomplishment." In this connection the late Mr. Hitz, of the Volta Bureau, Washington, D.C., collected for the writer information on the subject of the acquirements of the deaf which is interesting. Although the letters quoted are from the orally-taught deaf, it is not contended that the manually-taught are not capable of high intellectual attainment. I quote them here for two reasons—(1) To show that the deaf are capable of high intellectual attainment; (2) as a tribute to Mr. Hitz' memory. All the letters date about two years ago.

VOLTA BUREAU,
WASHINGTON CITY, U.S.A., 28*th August*, 1906.

MY DEAR DOCTOR,—Rather than await more letters, I send enclosed originals to forestall any possible questioning, and enable persons interested to judge for themselves the results of oral school work in writing and the use of language. Three of the ten letters are from former pupils, of whom several are congenital deaf. More letters will, no doubt, come in response to my circular request for statements. I question whether an equal number of miscellaneous letters from sign-taught pupils could show results anywhere approaching these.—Sincerely yours,

THE SUPERINTENDENT OF THE VOLTA BUREAU,
JOHN HITZ.

3735 WALNUT STREET,
WEST PHILA., 22*nd August*, 1906.

MR. JOHN HITZ,
Volta Bureau, Washington City, U.S.A.

DEAR SIR,—I believe in and favor the oral method of instruction, because it has many advantages if well persevered in. It gives one the enjoyment or privilege of acquaintance with the hearing and the hearing with him. In my experience it is not as easy to do good as to do evil, and so it is with this question of oralism. The deaf ought to be encouraged to persevere in oralism, which is a good thing, though perhaps more difficult at first than manualism.

In relation to my experience in intercourse with different people, I find in some cases it is more difficult to understand them than in others, because the movements of the lips may be likened to the character of handwriting. The writing of some persons may seem difficult at first, but with a little perseverance we can make it out, and afterwards it becomes simple.

This apparent difficulty should not be taken as an argument in favor of manualism, because its use is confined to a class, as the hearing, except in special cases, do not practise it.

Oralism can be used after proper training, with more or less satisfaction, by any deaf person who will persevere in the practice of it. This is especially true in the case of persons who may have become deaf after having learned to talk.

In my own case, I entered school as a congenital deaf-mute, having been one of a small class just started as an experiment, so my entire education was acquired by the oral method.

In all my intercourse with my family and friends I converse orally and read the lips. With entire strangers I usually resort to the pencil, because of the difficulty above referred to. I feel confident that I am much better off in all matter of business, &c., than the deaf who must depend on the sign language or use the pencil.

After leaving the school for the deaf, I studied for six years in the Art School among hearing pupils and instructors. Two of my classmates entered the High School, and graduated therefrom, which would have been impossible for them if their instruction had began by the manual method.

Since my schooling began, in 1881, the oral system has been much improved on, and young pupils beginning now have many advantages which I did not have, especially in the earlier years of my training. —Cordially yours,

(Signed) CONRAD F. HAISELER.

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15 CUSHING AVENUE,
DORCHESTER, MASS., *3rd August*, 1906.

MY DEAR MR. HITZ,—In reply to your question as to my practice and experience in the matter of using speech in my intercourse with others, will say that I use speech entirely and altogther in my intercourse with others. I have no trouble in getting along. It is as natural for me to talk as it is for anyone who can hear. As a rule, people understand me very readily. If they do not comprehend at first, they generally do after I repeat what I said before. This is apt to be the case with people whom I do not see very often, but with those with whom I constantly come in contact, neither they nor I give a thought to my deafness. I find it far easier to talk than to use signs, simply because I have been brought up that way—all my family refusing to use signs from the very first of my becoming deaf when I was 3 years and 4 months old. I am glad and thankful I can use speech and read the lips also. It is more natural, more like folks, and attracts less attention from the public.—Very sincerely yours,

(Signed) HELEN C. HOADLEY.

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591 ATLANTIC AVENUE,
BOSTON, MASS., *4th August*, 1906.

MR. JOHN HITZ,
Washington, D.C.

DEAR SIR,—Replying to your letter of 4th July, I was educated at the Clarke School at Northampton. For ten years after leaving school I was foreman of a department in a large manufacturing establishment, having full control over the men under me. For the last ten years I have been in business for myself, employing ten or twelve hands. All my communications with customers and employees are by means of lip-reading and verbal intercourse. It is seldom that I find it necessary to resort to pencil and paper.

I never could have worked up to the position I occupy to-day if I had to rely on the sign language as a means of communication with others.—Very truly,

(Signed) JAMES P. BURBANK.

2359 PARK AVENUE,
CINCINNATI, *5th August*, 1906.

MR. JOHN HITZ,
Washington, D.C.

DEAR SIR,—In reply to your favor of the 31st, I beg to say that inasmuch as I am still ignorant of the use of the manual alphabet, and have, notwithstanding this fact, gone through college, and also graduated from the Ecole des Beaux Arts, Paris, the extent to which I rely on speech becomes obvious. I associate entirely with hearing people, circumstances being such that I have hardly met any deaf people since leaving Northampton fifteen years ago. Furthermore, in the practice of my profession as an architect, I come in contact with many strangers, but I have been fortunate enough to have had no trouble in making myself understood, or in understanding others. In short, if you will allow me to say so, I often forget that I am deaf.

If there is any further information I can give you, do not hesitate to ask for it.—Yours very respectfully,

(Signed) —— ——

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151 CHARLESBANK ROAD,
NEWTON, MASS., *8th August*, 1906.

My experience in the use of speech is substantially as follows:—

I can generally understand and make myself understood by my own family, but the more difficult words have to be spelled or written.

The extent to which I can understand strangers depends much upon the distinctness with which they speak. In stores and cars I can usually make my wants known without difficulty, and comprehend readily what is said to me. General conversation and public speaking I cannot follow beyond a few words.

Since advancing years have caused some failure of sight my power of reading the lips has slightly diminished, but I still depend upon it, and probably always shall as long as I can see at all.—Yours respectfully,

(Signed) ALICE C. JENNINGS.

DEAR MR. HITZ,—I have not exaggerated in the slightest degree the facts of my unusual success in having made my way through a sometimes unsympathetic world by lip-reading and speech alone, but my testimony written by myself strikes me as being decidedly like a vigorous blowing of my own horn. I have been disappointed and vexed in so many instances by the refusal of really good and promising oral pupils to make use of their gift in after-life that I am willing to offer my own experience as an example of what *can* be accomplished if discouragements are not allowed to overcome determination.

I am hoping to come East next year, and as Washington is in my itinerary, I am looking forward with genuine pleasure to meeting you again personally, and I shall try to spend some happy hours in viewing the treasures of the Volta Bureau. If you desire my testimony in any different or more emphatic form I will gladly amend it to your satisfaction.

My mother joins me in kindest regards.—Cordially your friend,

(Signed) Daisy M. Way.

Kansas City, 9*th August*, 1906.

Hon. John Hitz,
Washington, D.C.

My Dear Mr. Hitz,—Answering your enquiry of the 20th ult., made in behalf of Dr. Love, of Glasgow, I am proud to say that there is but one reply to make—my reliance upon speech and lip-reading is, and has always been, absolute. During all the years of my attendance at the public schools—which I entered at the age of 12—and up to the time of my graduation from the High School, and the months spent at Business College previous to assuming the clerical position I have held continuously for twenty years, and through your successive changes of business ownership, I think I can say in perfect truth that I could number on the fingers of a hand the people who have resorted to written communication with me, and, further, this was owing to their own lack of confidence rather than to any failure on my part in nearly every case.

Write me down as a living exhibit of the good results of a pure oral education, and a patient, unswerving determination to make the broadest practical use of it that opportunity and circumstance will allow, even at the expense of one's own feelings, if need be, at times.—Yours in greatest sincerity,

(Signed) (Miss) Daisy M. Way.

Philadelphia, 14*th August*, 1908.

Mr. John Hitz,
The Supt. of the Volta Bureau,
Washington City, U.S.A.

Dear Sir,—In reply to yours of the 8th inst., would say although I was born deaf, yet I can talk plain enough to be understood by any stranger; some would take me for a foreigner, as I do not always emphasise properly.

I owe the capability to talk, firstly, to going to oral school early; secondly, to going as a day pupil instead of as a boarder, as none in my family ever knew how to make one single manual sign, and this very reason tended to make me use speech more frequently than I would have done had I lived in school; thirdly, and most beneficially of all, to associating with hearing boys.

I am now business manager of a manufacturing concern, after having acted as a shipping clerk, travelling salesman, and designer.

My chief care is to keep away from deaf people as much as possible, and yet have an interest in their welfare.

I think the best way to transmit this report to Dr. Love is to tell him I belong to a club of hearing boys, and I have many friends with whom I enjoy conversations on political topics, literary subjects, and all other various subjects; if I had not gone to oral school I would not be enjoying all these advantages.—I am, yours very respectfully,

(Signed) D. ELLIS LIT.

BOSTON, 19*th August*, 1906.

JOHN HITZ, Esq.

DEAR SIR,—My son, Ernest A. Sargent, was made deaf by sickness when 2½ years old, and how to educate him was a question which caused us much anxiety, but fortunately we resided within reach of the Horace Mann School (oral teaching), in Boston, and at 17 years of age he had acquired an education but little (if any) inferior to the average boy of that age. But better than all else had been the moral influence of the school, led by one of the best women who ever blessed a schoolroom, Miss Sarah Fullar (the principal). The teachers seemed full of love and devotion for their children, and their moral influence is most remarkable. I am very grateful that my son, who is now 24 years old, was educated at this school, while he was learned the sign language from intercourse with deaf people who could talk no other way. Since leaving school he does not use signs with others, and has very little trouble in talking with hearing people. One lady who had known him for about a year and a half could hardly believe he was deaf when told so. It is a great blessing when out in public to be able to talk with one so affected without attracting the attention of people, as persons do who are confined to the sign language. I would say by all means to deaf people, learn the oral method, as it will bring one in touch and companionship with hearing people as they otherwise would not.—Sincerely yours,

(Signed) JAS. E. SARGENT.

MILTON, MASSACHUSETTS,
21*st August*, 1906.

JOHN HITZ, Esq.,
Superintendent of the Volta Bureau,
Washington, D.C.

DEAR SIR,—Your letter of 8th inst. received. My son has been deaf from infancy. He was taught lip-reading and oral speech. He was a regular student at college, and received degrees of S.B. and civil engineering at Harvard University. He is in the employ of the Carnegie Company at Pittsburg; he uses oral speech in his intercourse with others, and is constantly making new friends among hearing people. I consider it of the utmost importance that the deaf should be taught lip-reading and oral speech, and that they should be kept in touch with the world.—Very truly,

(Signed) MUNROE CHICKERING.

PHILA., PA., 22*nd August*, 1906.

MR. JOHN HITZ,
Volta Bureau, Washington, D.C.

DEAR SIR,—I myself (deaf as a door nail) depend wholly upon my speech and lip-reading in my intercourse with others, just as you or anyone else does with their speech and hearing.

In giving me speech and lip-reading the Institution at Mt. Airy has given me two of the best weapons to fight my way through the world. By my ability to speak and read the lips they have enabled me to rise from press-feeder to pressman, the highest position in a newspaper office (pressroom), and by these two (speech and lip-reading) hold my position against all hearing applicants for the position for four years; they will only get it after I have gone higher into other departments. I am at present taking up advertising; I draw the third highest pay in the firm.

Being married to an oral graduate from the same institution as myself, we both talk to one another and read each others lips with ease. Having two children, both hearing, we have the pleasure of talking to them, and understanding them, by reading their lips. Hoping I have explained myself to the best of my ability.—I remain, yours very truly,

(Signed) L. J. M'GUICKEN.

Deaf in Government positions.—The following is a list of deaf persons holding positions in the Government departments at Washington :—

Printing Office.—G. P. Allen, J. O. Amoss, H. S. Edington, J. E. Ellegood, Fred. Harrison, A. D. Hodges, Harry Reed, B. C. Champlin. *Pension Office.*—William Brookmire, Miss Late Elliott, William Lowell, M. O. Roberts. *Post Office Department.*—Miss Annie Elliott, G. O. Erickson, S. E. Beller. *Treasury Department.*—L. H. LeFevre, R. E. L. Nicholson. *War Department.*—Cyrus Chambers, Isaac N. Hammer. *Agricultural Department.*—William Pfunder. *Mail Bag Repair Department.*—E. E. Berndorff, J. T. Flood. *Bureau of Engraving and Printing.*—W. P. Souder. *Weather Bureau.*—H. C. Merrill. *Patent Office.*—T. H. Mitchell. *Census Office.*—R. J. Stewart. *Coast Survey.*—F. G. Wurdemann. *National Museum.*—A. F. Adams. *Printer, Government Insane Hospital.*—J. S. Edelen.

[Many of the above are sign-taught.—J. K. L.]

These letters make some reference to the position and work of the missions to the deaf and dumb desirable. The missions to the adult deaf are the counterpart to the education of the deaf by charity. With the growth of oralism, the more thorough education of the deaf, and the assumption of the entire responsibility of the education of the deaf by the State, the work of the missions must undergo a profound, if gradual, modification of their objects and methods. At present the deaf and dumb mission is the club for the adult deaf, providing wholesome amusement for the members; whilst, on Sundays, divine service is conducted by the missionary, who, as he must address all the deaf, must do so in a language which all understand, and which, consequently, must be a sign and finger-spelling language. In most cities the missionary finds work for the deaf after they leave school. Such an arrangement makes the deaf a class apart, discourages the use of speech amongst the deaf, and fosters the intermarriage of the deaf. It is a common, perhaps a general, experience that the deaf in cities tend to throw up speech and degenerate to manualism, whilst the deaf in country districts keep up and improve their use of speech. In future some modifications of this missionary work must take place.

1. The orally taught deaf should not frequent the missions as these are at present constituted. Evening classes for the deaf would constitute a club for several years after leaving school, after which the adult deaf may be trusted to form their own clubs or join those of hearing people.

2. The orally taught should have their own religious service. The primitive definition of a church may well be adopted for them—“Where two or three are gathered together

in My name, there am I in the midst of them." Dr. Addison and I were present at a very delightful service for the deaf in Schlesing, conducted orally on a Sunday morning, and Dr. Elliot, of Margate, tells me that he conducts an oral service at the institution there. If all the deaf must attend one church in a city, an arrangement such as exists in the Highlands now might be made—a forenoon service in Gaelic and an afternoon service in English. For the finger-spelling deaf there might be a silent service in the morning, and for the orally-taught deaf an oral service in the afternoon.

3. For the employment of the deaf the school board or a committee of tradespeople should take the place of the missionary, who cannot be expected to do this work as well as practical tradesmen can. Now that the State has become responsible for the free education of the deaf up to the age of 16 years, the best use for the funds at present in the hands of the institutions would be the care of the deaf after that age, and the assisting of the deaf to settlement in an appropriate trade, business, or profession. Donations and legacies would be as willingly given for this purpose as they are now for elementary education, for which they are no longer necessary.

Such a modification of the work of the missions to the adult deaf would make for the greater efficiency of their agencies, and bring them into line with the modern requirements of the deaf. I do not make the suggestions for modification because I think the deaf need no care or help after they leave school. But at present the work of the mission to the deaf tends to keep them a class apart, as the work of some of the institutions tends to make them so, whereas the work of both must be modified so as to extinguish, as far as possible, the gap separating the deaf from the hearing.

CASE OF POSSIBLE INCIPIENT ADDISON'S DISEASE.[1]

By J. SOUTTAR M'KENDRICK, M.D., F.F.P.S.G., F.R.S.E.,
Assistant Physician, Glasgow Western Infirmary.

Cases of Addison's disease are rare, and far more rare are reports of cases that have shown a symptomatology pathognomonic of the disease. As a result, a doubtful diagnosis has been made, until a *post-mortem* examination has revealed the true nature of the disease.

I do not think, therefore, that the case I have the pleasure of bringing before the Society to-night can be *definitely* stated as one of Addison's disease, even in its incipient form. Indeed, I feel sure that many here may have another diagnosis to offer. The case none the less presents symptoms and signs that conform very truly to the picture depicted by Addison himself in its primary stages, and, moreover, it presents some other features, difficult of explanation, that warrant the Society's attention for a few minutes this evening.

Addison's disease has been defined by Rolleston in the recent edition of Clifford Allbutt's *System of Medicine* as "an exaggeration of the normal pigmentation of the skin, associated with extreme prostration, muscular and cardiovascular asthenia, and a liability to syncope, nausea, and vomiting; after death, the chief or only lesions are in the suprarenals." Granted, then, that a diagnosis of Addison's disease depends on a collection of symptoms, of which pigmentation is only one, it is rare for anyone to hazard a diagnosis of Addison's disease unless pigmentation has manifested itself. It is the pigmentation of the skin, and perhaps also of the mucous membranes, that as a rule first suggests the disease to the clinician's mind. Still, as Rolleston puts it, "pigmentation, though suggesting the disease, is not of itself, apart from the constitutional symptoms, sufficient to warrant a positive diagnosis."

When my patient presented herself to me at the Dispensary of the Western Infirmary, I was struck with the pigmentation of her face. The pigmentation was not very dark, but was sufficiently obvious to cause me to make a careful examination of the skin elsewhere, and to make a more lengthy report on the physical condition than I would otherwise have done.

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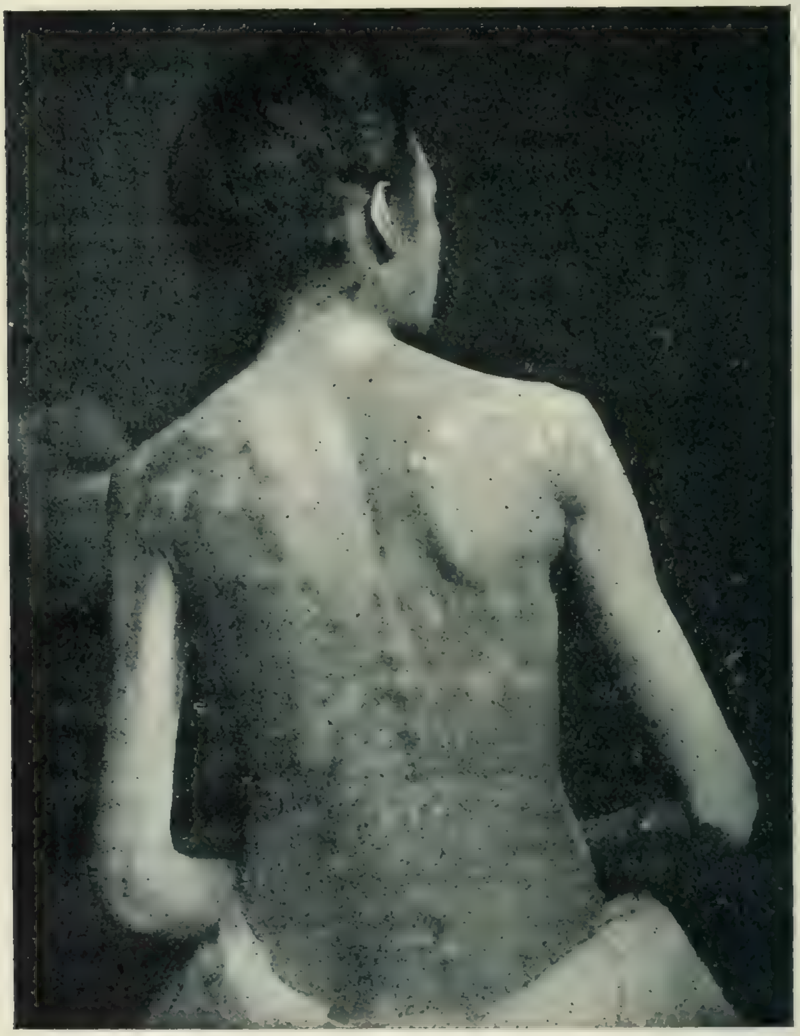
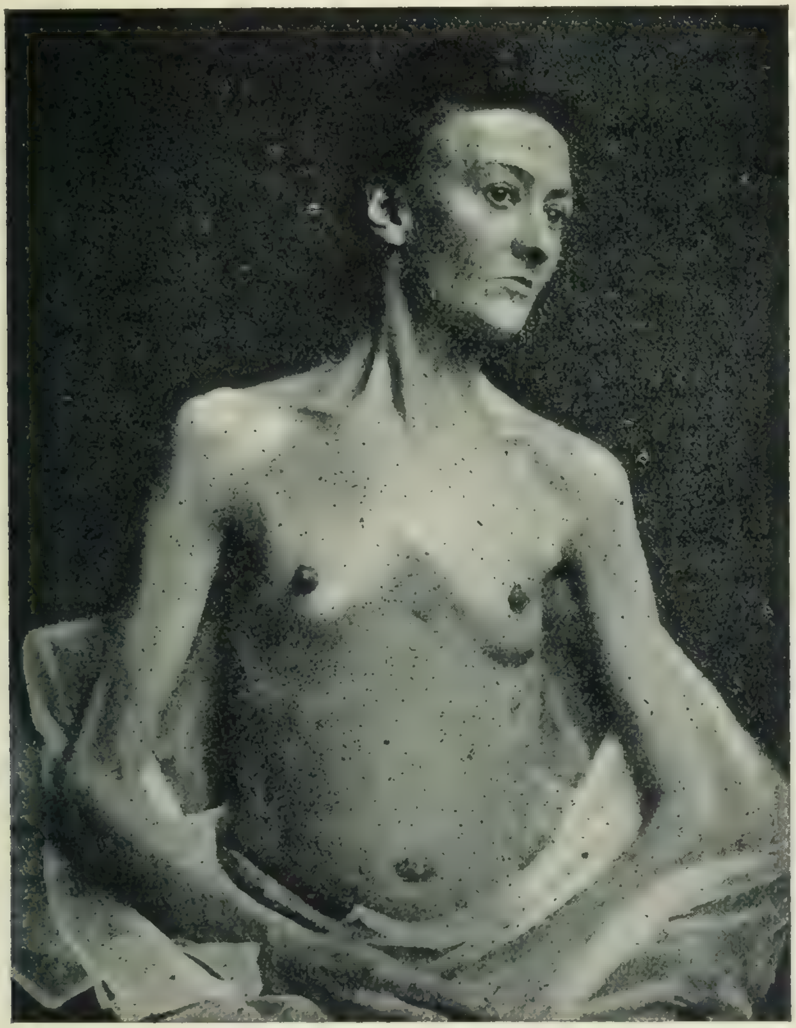
[1] Read at a meeting of the Medico-Chirurgical Society of Glasgow held on 6th November, 1908.

Mrs. B., æt. 37, was seen by me in the first instance in June, 1908, when she complained of cough with expectoration and general weakness of four months' duration.

History of previous health.—She had always been well, and was never confined to bed unless at the births of her children. Even in childhood she never had measles, scarlet fever, or any other fever. Before the birth of her sixth child she had catarrh of the bladder.



History of present illness.—After catarrh of the bladder three and a half years ago she was weak for some months, but after convalescence she remained perfectly well until four months ago, when a cough started six weeks before the birth of her last child. The birth was quite natural. No instruments were used, and she did not lose much blood. During her puerperium, however, the cough became aggravated, and the expectoration was profuse and thick. It never contained blood. Although she frequently complained of tiredness before the onset of the cough, this became greatly intensified, so that she always desired to remain in bed. She frequently broke out in cold sweats, which lasted for a few minutes. She never had epistaxis, hæmatemesis, hæmoptysis, or bleeding into the skin, and the eyesight always remained good. About a year ago her friends remarked upon the colour of her skin. They noticed it especially about the hands and face, and they thought that she did not wash



herself sufficiently. The bowels were always regular. The periods were usually regular and normal in character. For some time she has had no appetite, and frequently she has had indigestion with sickness.

Family history.—Her father is well; her mother died in childbed. She has only one brother, and he is well. No other relatives to her knowledge ever suffered in the same way as she did. She has seven children, all of whom are well. She has had no miscarriages.

Habits and social condition.—She is a total abstainer. She has always had good food and plenty of it. She lives in a two room and kitchen house, which is well ventilated.

Present condition.—The patient is pale, with a brownish yellow colour. The eyes are bright, and the pupils are equal and react normally to light and in accommodation. The pulse is regular, numbering 90 in the minute, and of low blood-pressure. The breathing is slightly hurried, but there is no orthopnœa. Occasionally there is a loose cough, with expectoration. The patient is thin and the muscles are soft. The mucous membranes are very pale. The tongue is clean. The mucous membrane inside the mouth is not pigmented. The arteries generally are soft and elastic. There is marked venous pulse in the neck. The finger tips are not clubbed, nor are the finger nails curved in any direction. There is no œdema. There is distinct myotatic irritability of the muscles.

Pigmentation of the skin.—There is a very striking pigmentation of the skin. The pigment distribution can be seen by the photographs (back and front). The colour is yellowish brown, and affects chiefly the forehead, neck, hypochondriac and abdominal regions in front, and the infra-scapular and lumbar regions behind. The arms are uniformly pigmented from the shoulder to the metacarpo-phalangeal joints. There is an entire absence of pigment over the clavicular and mammary regions in front, and the supra-scapular region behind. Scattered here and there through the pigmented areas are patches, varying from a lentil to a walnut, of clear pearly skin. The pigmented areas are not raised above the surface, nor are they affected by scraping with the nail or sharp instrument. The thighs and legs are quite free from pigment. The pigment is more marked over the areolæ and axillary regions.

Lungs.—There is evidence of consolidation over the left apex, where there is relative dulness to percussion, diminution of R.M., some tubularity, and a few dry and moist râles. The lungs are otherwise normal.

Heart.—There is some increase of dulness to the left, but no murmurs are heard.

Abdomen.—The liver is normal in size. The kidneys are not palpable. The spleen is markedly enlarged, measuring 7½ inches in its vertical diameter. It passes downwards and inwards to a point reaching 3 inches from the umbilicus and 2½ inches from the middle line. It is painless and freely movable, both on manipulation and during respiration.

Urine.—Normal in every respect.

Sputum.—This is clear and non-purulent, slightly catarrhal and viscid, and contains tubercle bacilli in large numbers.

Blood (examined by Dr. Greenlees).—Hæmoglobin, 50 per cent; red cells, 3,870,000; white cells, 5,200: colour index, ·6.

Differential count.—Polymorphonuclears, 72 per cent (with few eosinophiles); large hyaline, 5 per cent; lymphocytes, 23 per cent (with transitional forms).

No poikilocytosis and no nucleated red blood corpuscles were seen.

4th July, 1908.—During the last fortnight the patient has improved. The cough has been less, and the pigmentation has varied considerably.

9th September.—Since last note the patient has felt very weak. She has difficulty in walking about, and the effort of walking upstairs makes her very breathless. The cough has been more persistent, and this has prevented her from sleeping at nights. There is little alteration in the amount and character of the pigmentation. The spleen remains as before.

17th October.—Conditions have remained during the last month much as before, except that diarrhœa has been a troublesome symptom on several occasions. The blood was examined again by Dr. Greenlees and showed hæmoglobin, 55 per cent; red blood corpuscles, 3,500,000; and white cells, 5,000.

Remarks.—The symptoms in their order of development, then, were pigmentation of the skin, great weakness accompanied by breathlessness, cough with expectoration, anæmia, and lastly a tendency to diarrhœa. The pigmentation commenced almost a year before the asthenia and cardiovascular symptoms, and some little time before her last pregnancy. Could this pigmentation depend on any other cause than disease of the suprarenals? One naturally thinks of some abdominal disease, such as tubercular peritonitis or malignant tumour, which are often associated with pigmentation of the skin. These diseases can be excluded.

Pigmentation may occur also in certain diabetic conditions —"diabete bronzé"—but in such a disease there is glycosuria with enlargement of liver and spleen. Pigmentation may occur in pregnancy, but in this condition it is very patchy and not so extensive as in the present case.

I think vagabondism and tinea versicolor can be excluded. She had not been taking arsenic. So we are left with the pigmentation associated with splenic tumours, suprarenal involvements, and lastly chronic pulmonary tuberculosis.

The pigmentation with chronic pulmonary tuberculosis is often designated "Addisonism," which practically admits that, no matter whether the disease in the lung be primary or secondary, the suprarenal capsules are ultimately involved. From that point, then, I think it matters little whether we say our patient has "Addison's disease" or "Addisonism." There are cases recorded, however, of chronic pulmonary tuberculosis, where decided pigmentation has been present and no involvement of the suprarenals found *post-mortem.* In these cases, too, there may be splenic enlargement with a normal blood-count. Then, again, Osler has described cases of splenic anæmia with normal blood-count, and in which distinct pigmentation was present.

We are left, then, in doubt as to whether this is a case of primary tuberculosis of the lung with splenic enlargement and pigmentation, or whether, as it seems to me more likely, it is a case where in the first instance there is disease of the suprarenals and subsequently lung involvement and splenic anæmia. In Addison's disease the spleen is sometimes enlarged, and there is often hypertrophy of the lymphoid follicles of the stomach and intestines.

As a rule, in Addison's disease the asthenia and gastric symptoms precede the pigmentation. In the present case this is not so, for pigmentation was noticed some months before the weakness developed. I saw a case under Dr. Rose Bradford's care recently where pigmentation had been present for fully seven years, and the case appeared to be unmistakably one of Addison's disease. In a case described by the late Dr. Lindsay Steven in November, 1900, before this Society, the pigmentation was not noticed until a few weeks before death. The pigmentation may be therefore an early or a late symptom of the disease.

Another interesting point in this case is the presence of clear areas, or perhaps what might be called leucodermatous patches, throughout the pigmented area. Dr. Barclay Ness showed a very striking case of this in May, 1900. The question was raised at the time as to whether the disease was simply a leucodermia, or Addison's disease associated with leucodermia. Addison himself on several occasions noted the patchy distribution of the pigment, and he was of opinion that the disease had associated with it on occasions clear areas. Sir William Gairdner upheld Addison's view, although this has been opposed by Sir Samuel Wilks. In Dr. Ness's case, that of a woman, aged 22, there was associated with the skin condition anæmia and a tubercular lesion of the left lung. The spleen was normal. Dr. Lindsay Steven at a subsequent meeting showed the suprarenal capsules from three typical cases of Addison's disease, verified *post-mortem*, and in no case was there a trace of leucodermia.

The points, in conclusion, which are of special interest, and which I lay before the Society for discussion, are—

1. Are we justified, from the symptoms of pigmentation, asthenia, gastroenteritis, tuberculosis, and splenic enlargement with normal blood-count, in supposing (without *post-mortem* examination) that this patient suffered from Addison's disease?

2. Is it more likely that the primary disease is chronic pulmonary tuberculosis, with splenic enlargement, pigmentation, weakness, &c., as secondary manifestations or accompaniments of this toxic process?

3. Is there leucodermia associated with this peculiar Addisonian pigmentation, and if so, does the Society think that leucodermia is a frequent accompaniment of Addison's disease?

[Since the above paper was communicated to the Society, I have heard that the patient died in December, 1908, two months after the accompanying photographs were taken, and ten months after the onset of her illness. Unfortunately, no *post-mortem* examination was obtained.]

RADIUM IN DERMATOLOGY.[1]

By J. GOODWIN TOMKINSON, M.D.,

Medical Electrician, Glasgow Western Infirmary; Dermatologist, Glasgow Hospital for Diseases of the Ear, Throat, and Nose; late of Service of Professor of Dermatology, Paris University.

To M. Danlos belongs the honour of having, in 1902, first employed radium—supplied by M. Curie—in the treatment of cutaneous diseases. In 1905 I had the pleasure of discussing the treatment with him. During the three years 1902-1905 he had made many applications of radium in various skin conditions, the early ones with apparatus of feeble radio-activity, the later ones with more powerful apparatus. Amongst the affections treated by him were lupus vulgaris, lupus erythematosus, small vascular nævi, psoriasis, alopecia areata, leucoplakia, and lymphangioma. In lupus erythematosus and psoriasis the cure was of temporary duration, and in alopecia areata the effect was *nil.* There was possibly some amelioration in leucoplakia and in lymphangioma. In concluding a communication to the Société Médicale des Hôpitaux de Paris, M. Danlos said, "We conclude from our personal essays that up to the present radium, in the special conditions where we have operated, has only exhibited real therapeutic value in three affections: tuberculous lupus, superficial epithelioma (épithélioma perlé), and vascular nævus. We must add that its employment is only truly advantageous in the limited forms of these diseases." Since then, however—doubtless due to improvement in technique and the employment of more powerful apparatus—results have been obtained, by various workers in France, which prove the high value of radium therapy in dermatology. Its value, however, is not by any means confined to that branch of medicine.

It was my good fortune some few weeks ago to see a large number of cases under radium treatment when visiting the Paris Institute of Radium and the Saint Louis Hospital, and upon this visit I have ventured to make this communication.

It will be remembered that the disintegration of radium gives rise to three different kinds of rays, α, β, and γ. The α and β rays consist of electrified particles. The γ rays are of entirely different nature: they are not particulate, but are vibratory rays, that is perturbations of the ether due to the liberation of the particles constituting the α and β rays.

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[1] Portion of a communication made to the Medico-Chirurgical Society of Glasgow on 2nd April, 1909. Illustrations by kind permission of MM. Wickham and Degrais and M. Dominici.

The particles constituting the α rays are positively electrified and comparable in size to hydrogen atoms, while those constituting the β rays are 1,000 to 2,000 times smaller and are negatively electrified. They are liberated at a very great velocity, the β rays at that at which light travels. The undulations constituting the γ rays are propagated at an extreme velocity and possess great penetrating power.

The penetrating power of these different kinds of rays differs. That of the α rays is relatively feeble. All the β rays do not possess the same penetrating power. Some, the hard β rays, possess considerable penetrating power, while others, the medium and soft β rays, are soon arrested. The γ rays are extremely penetrating, as their nature would suggest, and will pass through 10 centimetres of lead. Radium also gives off an emanation or gas, but with this we are not just now concerned.

The salt of radium most frequently employed in Paris is the sulphate, and this is usually mixed with sulphate of barium. This is spread upon variously shaped metal supports, or upon cloth, and fixed by a special varnish. For use in the depth of tumours, &c., the pure salt, usually the bromide, enclosed in a tube is sometimes employed. The radio-activity of these preparations depends, of course, upon the amount of barium sulphate included. The radio-activity of the pure salt—uranium as unity—is 2,000,000. A mixture of equal parts of the two sulphates would be expressed as 1,000,000.

Two methods of applying the rays are employed. In one, virtually all the rays (*composite radiation*) are utilised, the only intercepting material being a thin layer of rubber or goldbeater's skin, &c., covering the radium-bearing surface. The reaction is determined by the length of exposure, which is sometimes purposely prolonged until sloughing ensues. The other method (*filtration*) is one in which only a portion of the rays is employed. In 1905, M. Wickham interposed various screens between the apparatus and the tissues with a view to modify the radiations, and finally, with M. Degrais, filtered the rays through lead and rubber (*plomb caoutchoucté*). The filtration method is much employed by M. Dominici, and this form of radiation is called by him "ultrapenetrating." For purposes of filtration aluminium, silver, and gold, of varying degrees of thickness, are also employed. The duration of an application made according to this method is much longer than in composite radiation, as the less penetrating, but decidedly irritating, rays have been arrested.

The affections treated with radium which have come under my personal notice are epitheliomata of various kinds and in many situations, including two cases of lingual epithelioma developed upon leucoplakia, tuberculosis verrucosa, vascular nævi of various types, including cases of extensive "port wine stain," nævus pigmentosus, keloid (after burn), and rebellious acne vulgaris, &c.

Amongst the first cases shown to me and treated by Dr. Dominici was that of an old lady, aged 69, a patient of M. Thibierge, suffering from extensive epithelioma (épithélioma pavimenteux) of the nose (Fig. 1). *a*, shows the condition prior to treatment in October, 1908; *c*, shows the condition after three applications, of twenty-four hours each, of an apparatus consisting of a glass tube containing 9 centigrammes of pure radium salt enclosed in an outer tube of silver 1 millimetre thick, which in turn was enveloped in rubber; *b*, shows the modification effected at the forty-fifth day, and *c* at the seventy-fifth day after the commencement of treatment. When I saw the patient early in February she had had another application—making four in all. The lesion had markedly diminished in size, being much less than as depicted in *c*. The right side of the nose was healed, and the

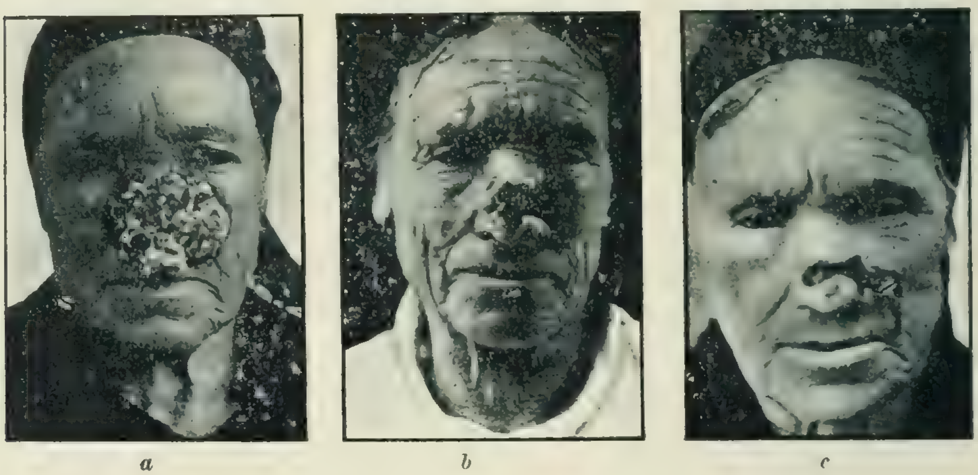

FIG. 1.

a, before treatment; *b*, forty-fifth day after treatment; *c*, seventy-fifth day after treatment. (Dominici.)

unhealed area could virtually be covered with the finger-tip. On examination of Fig. 1, it will be seen that not only was there absorption of neoplastic tissue and liberation of the remaining healthy parts, but restoration of the characteristic shape of the healthy tissues.

The quality of the tissues of the cicatrised portion was excellent—smooth and flexible, but slightly paler than the contiguous skin.

Fig. 2 shows an extensive epitheliomatous ulceration affecting the right temple of a patient of M. de Beurmann, treated by MM. Wickham and Degrais. No part of the lesion received more than fifteen hours' radiation (composite) in all.

While treating many other affections, MM. Wickham and Degrais have given special attention to the treatment of cutaneous epitheliomata, and in the vast majority of cases have obtained most excellent results.

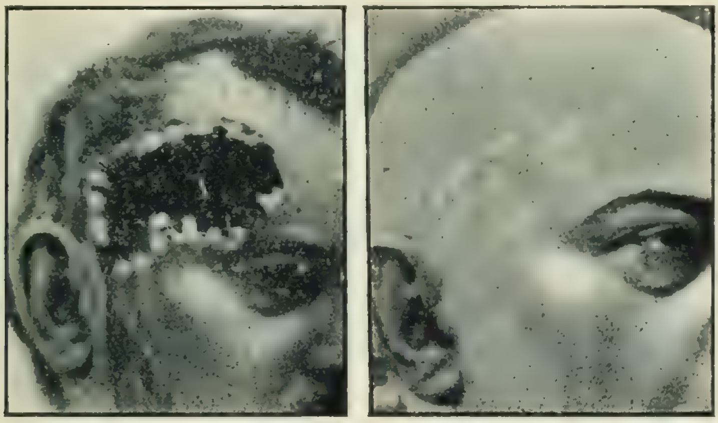

Fig. 2.
(Wickham and Degrais.)

Radium therapy, as applied by MM. Wickham and Degrais, is undoubtedly the most efficacious at our disposal for the treatment of vascular nævi. The most amenable are elevated erectile angiomata. The results, however, in non-elevated nævi are remarkably good, in some instances leaving little, if anything, to be desired. All the cases of "port wine stain" undergoing treatment that came under my notice were markedly improving.

Fig. 3 shows a case of elevated erectile angioma—with tendency to extend—in a baby treated by MM. Wickham and Degrais by their method of "feu croisé." In this case there was some uncertainty as to the continuity of osseous tissue beneath the tumour. It was necessary to avoid any risk of ulceration for fear of hæmorrhage, and also to avoid acting too energetically on the possibly unprotected cerebral tissue beneath the tumour. Applications were made from time to time after the following manner:—Two apparatus were taken and placed laterally on the tumour at two points, directly opposite each other, for fifteen to thirty minutes: then at two other opposite points for the same length of time. By this means a more intense action was secured in the depth of the tumour—a multiple of that sustained at each point of the surface. Ulceration of the surface was thus avoided, and the brain tissue also protected. After the tumour had diminished in size, palpation revealed the integrity of the bony wall when applications vertical to the surface were made.

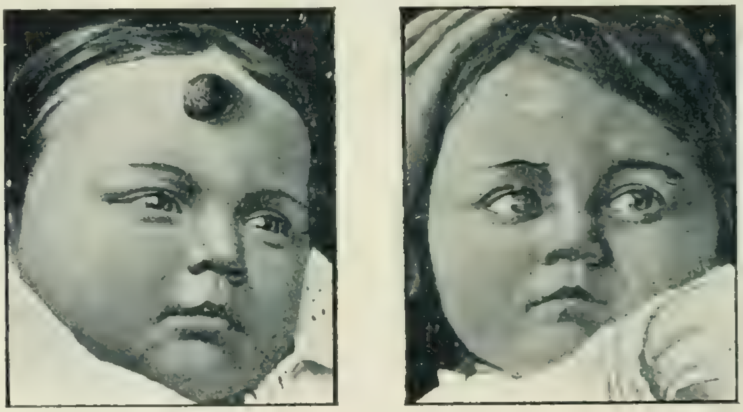

FIG. 3.
(Wickham and Degrais.)

Keloid is eminently amenable to radium therapy—a distinct advance in the therapeutics, hitherto so unsatisfactory, of this condition.

The results of radium therapy in lupus vulgaris and tuberculosis verrucosa do not appear to be, at present, such as would recommend its exhibition in preference to some of the more generally adopted methods—unless in lupus of the mucous membranes. In the fixed type of lupus erythematosus, radium certainly appears to be of value.

In various rebellious pruriginous conditions MM. Wickham and Degrais have effected rapid cures.

The applications of radium are painless, and in those cases where a reaction is produced no subjective condition more disagreeable than itching results, and this only lasts during the formation of the crust. Pain, however, develops if the crust be torn off.

The cicatrices are of high æsthetic value, supple and smooth, and free from anything approaching to hypertrophy. The cicatrices in cases of angiomata have been microscopically examined by MM. Dominici and Barcat, a portion of whose description of the histological findings I quote from an article by MM. Wickham and Degrais which appeared in the *Revue de Médecine* for 1908:—"The newly-formed connective tissue differs from inflammatory cicatrical tissue in several characters—

"1. The superposition of the fixed cells, the fibrous bundles and elastic fibres following a regular stratification.

"2. The absence of expansion of the newly-formed connective tissue beyond its natural limits.

"3. The delicate nature of the newly-formed fibrous tissue."

This explains the regularity and suppleness of the tissue formerly occupied by the nævus.

CURRENT TOPICS.

FACULTY OF PHYSICIANS AND SURGEONS.—At the May meeting of Faculty, Mr. D. N. Knox was elected Representative to the General Medical Council in succession to the late Dr. Lindsay Steven.

THE COLLECTED PAPERS OF LORD LISTER.—The appearance of the collected papers of Lord Lister has been delayed by the destruction by fire early last month of the London establishment of the Clarendon Press. The bound volumes were lying in the warehouse in Aldersgate Street when that building was burned to the ground. We understand, however, that a considerable number of unbound copies are in existence at the press in Oxford; and the binding of these will be pushed on, so that there may be as little delay as possible in publishing the work.

We believe that an advance copy was placed in Lord Lister's hands some little time ago.

THE LATE SIR WILLIAM GAIRDNER, K.C.B.—We understand that the collected works of the late Sir William Gairdner will shortly be published by Messrs. MacLehose. The volume will be edited by Dr. George A. Gibson, Dr. Eric Gairdner, and Professor Lewis R. Sutherland.

This announcement leads us to mention the account of Gairdner's last illness, partly written, partly dictated, by himself, which was communicated by Drs. Gibson and Ritchie to the Medico-Chirurgical Society of Edinburgh in February of this year, and which appeared in the April number of the *Edinburgh Medical Journal.* The account brings vividly before us the love of truth, the thoroughness and accuracy of method, and the style of thought and of writing which were characteristic of our old master; and there is none of his former pupils who will read it without recalling him who unconsciously pointed us to a high ideal of what a physician should be.

PARTICK AND DISTRICT MEDICAL SOCIETY.—A highly successful session of this newly-formed Society was brought to a close on Thursday, 29th April, when the annual business meeting was held—Dr. Arthur Mechan, retiring President, in the chair. Practically all the medical men of the district have now become members of the Society, and during the past session many subjects of considerable interest to the profession generally have been discussed. Among such subjects may be mentioned the notification of phthisis, the relations of practitioners to district nursing associations, and the conditions and remuneration of contract practice. In the case of club practice, the members have bound themselves to accept only the minimum fee approved by the Society (4s.) The following office-bearers were elected for the ensuing session:—*President*, Dr. J. Gibson Graham; *Vice-Presidents,* Dr. Wm. Snodgrass, Dr. John Morton; *Secretary,* Dr. A. W. M. Sutherland; *Recording Secretary,* Dr. J. King Patrick; *Treasurer,* Dr. John Gracie; *Council*, Drs. D. Westwood, W. A. Caskie, D. J. Mackintosh, M.V.O., Jas. Scott, Jas. Hunter, W. S. Paterson, John Taylor, and Arthur Mechan.

THE PHYSIQUE OF GLASGOW CHILDREN.—At the closing meeting of the present session of the Royal Philosophical Society of Glasgow, Dr. A. S. Macgregor read an interesting paper on the physical condition of children admitted to Belvidere Fever Hospital over a period of two years.

The work of tabulation and analysis of the records was begun by Dr. J. R. Currie, late of Belvidere. The inquiry had particular reference to certain aspects of the relationship between physical condition and standards of life, the number of rooms in the house from which the children were drawn being adopted as a convenient economic standard. Existing data for Glasgow children all had reference to school ages (Mackenzie's Report, 1907); the present inquiry was chiefly intended to include children below school age. It was found that each social class (rickety children being excluded and considered separately) had its own standard of physique, the discrepancy between the poorer and better types of children being considerable at all ages, but particularly at those prior to school life. The influence of poor conditions of life was most notable between the ages of two and four years, and there appeared to be some recovery of physique about the period when school life begins. The scarlet fever group of children was found to be fairly representative of the average Glasgow child, and furnished a standard with which the poorest classes (*i.e.*, those admitted with whooping-cough and measles) might be compared. Height measurements were adopted as the chief criteria of physique, as weights were found to be interfered with, especially in young children, during the incubation periods. The effect of acute infection on the weight of children was discussed. The amount of increase in height and weight during residence of the child in hospital was employed as a test of the capacity of the slum child to benefit by residence in hospital, and the results showed that slum children as a group were quite amenable to improvement, and that no appreciable proportion of them failed to react to better surroundings. Rickets was found in 31 per cent of male and in 26 per cent of female children. Its effect in retarding growth was discussed, and its incidence was found to lessen rapidly in proportion as the number of rooms in the house increased. The statistics further showed that rickets was scarcely less common in the houses of the top storey than in those of the ground flat. Rickets was almost twice as common among children belonging to Glasgow as amongst those from other parts of the country, and prevailed much more extensively among children whose mothers were natives of Glasgow than amongst children whose mothers were foreign to Glasgow.

TERRITORIAL HOSPITALS: PRESENTATION OF BADGES TO NURSES.—On the afternoon of 10th May the badges issued to nurses enrolled in Nos. 3 and 4 Scottish General Hospitals were presented to them in the City Chambers. The Lord Provost presided in his capacity as President of the Territorial County Association of the City of Glasgow, and was supported on the platform by Sir Hector Cameron, Sir George Beatson, K.C.B., and a number of prominent ladies and gentlemen.

Mrs. M'Innes Shaw handed the badges first to the Organising Matrons of the Hospitals—Miss Melrose of the Royal, and Miss Gregory Smith of the Western Infirmary. The matrons then read out the lists of nurses enrolled in their respective hospitals, and each received her badge from Mrs. M'Innes Shaw. There are 120 nurses in each hospital. Many of them were, owing to their duties, unable to attend the function; but 80 nurses of No. 3 and 77 of No. 4 were present. The badge is issued by the War Office, and is from a design selected by H.M. Queen Alexandra. It is a silver oval, and is suspended by a scarlet ribbon with a white stripe in the centre. It is to be worn on the right breast, and should always be worn when the nurse is in uniform, indoor or outdoor. It is not to be worn when the nurse is in plain clothes.

REGISTRATION OF NURSES.—We have referred already to the movement in connection with the registration of nurses which has of late been prominently before the medical profession. In our April issue (p. 278) we outlined the scheme, which has received so much support in Scotland, and which seems to us to meet the requirements of nurses in all parts of the United Kingdom.

The report, in the daily press, of the recent deputation from the Society for the State Registration of Nurses, received by Mr. Asquith, comes as a surprise to us, and we are entirely in sympathy with the Prime Minister's criticism of the speeches by members of the deputation. From information which he possessed he was clearly not disposed to accept all that the deputation set before him, and we do not see that he could have done otherwise than dismiss them in the way that he did.

NEW PREPARATIONS, &c.

From Messrs. L. Hanneman & Son.

Hanneman's Medicated Biscuits.—These are biscuits of ordinary appearance and of moderate size. They are quite palatable, albeit slightly gritty. It is claimed for them that "they are particularly adapted for females suffering from constipation, also for children and persons who cannot take medicine in the ordinary form." They are said to contain a small quantity of carbonate of magnesia, and to act as anti-acids in addition to their aperient action. They are certainly very mild in action, for the sample submitted was tested on one adult male and two adult females in fair health in doses of three or four biscuits. No unpleasant effects were noted, but no apparent aperient action was obtained. Possibly a larger dose might succeed.

MEETINGS OF SOCIETIES.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.

SESSION 1908-1909.

MEETING IX.—19TH FEBRUARY, 1909.

The Vice-President, DR. ROBERT JARDINE, *in the Chair.*

DISCUSSION ON THE TREATMENT OF SUPPURATIVE APPENDICITIS.

SIR GEORGE T. BEATSON.

When I asked the Council of this Society to set aside an evening on which the treatment of suppurative appendicitis might be discussed, I had special reasons for requesting that the discussion might be limited to the suppurative variety of this disease. In the first place, I wanted to emphasise what I consider is a point of great importance, and that is, that suppurative appendicitis occupies a place by itself, and calls for special and particular treatment. In the second place, I was desirous to lay stress on this fact, that it is the suppurative variety of appendicitis that is entirely responsible for practically all the mortality in appendix operations. A third reason was, that this mortality is abnormally high, so high compared with the expectant treatment that I have my doubts as to whether operation in acute appendicitis is justified, save in a very limited and special class of cases. Finally, a point that weighed very considerably with me in asking for this discussion to-night was, that my expectant treatment of suppurative appendicitis was openly called in question by a medical man whose patient had been under my care in the Western Infirmary. He seemed surprised that I should have delayed operation in a case where the conditions indicated the formation of pus, and he had expressed his opinion very freely to the patient, as the accompanying letter, addressed to my house surgeon, will show :—

> Dear Sir,—I have your note with regard to James S. I sent him in at first as a case of appendicular abscess, which I thought required immediate operation. I was surprised, also, when told he had not been operated on for three weeks. Is Sir George Beatson in the habit of keeping acute abdominal abscesses for a few weeks before evacuating them? I agree with S. that those weeks were lost time, and might have been something worse.

I am not going to offer any comment on that letter. I prefer to regard it as an expression of honest belief on the part of the medical man that his patient had been unskilfully handled, although he was operated on and sent home well after an illness of great gravity. My house surgeon replied that he had nothing to do with the treatment of the cases in the ward, but that if the medical man would come up to the hospital on a fixed day and hour he would have an explanation on the point. I confess I was surprised at no notice being taken of the invitation, as he would have then been told, what I now wish to say to you, that it is my habit in cases of appendicular abscess to leave them unopened for two or three weeks unless they point in the interval, when they are opened and drained. I follow this course because I consider it the proper surgery of these cases, and because I am convinced that it is the non-observance of this treatment that is responsible for the heavy mortality in early operations for acute suppurative appendicitis. I am well aware that the presence of pus is held to be an imperative demand for operative interference in appendicitis. I question that opinion entirely, and I would go further and say it is a distinct bar to operation, save under certain conditions which I later on speak of. This conclusion is the outcome of years of hospital and private work, and when these cases are calmly considered, and not judged under a sense of unnecessary panic, I am convinced you will feel that I have good reason for the faith that is in me.

The first point to keep in mind is the important one that suppurative appendicitis occurs under two conditions—(*a*) diffuse, and (*b*) localised—and that of these two the diffuse is much the rarer of the two. In fact, cases of suppurative appendicitis, diffuse from the first, are in a minority. I know this point may be questioned, but my clinical experience in a large number of cases assures me I am correct in this statement. I had intended to give an illustrative case of each of these varieties, but as the time for this paper is limited, I think it best to omit them, and to submit to your consideration the symptoms of each variety.

In the case of the diffuse variety we have pain, with gastro-intestinal disturbance manifested by nausea, vomiting, and, usually, constipation. The pain is general in character, commencing frequently in the epigastrium and spreading through the whole abdomen. There may or there may not be considerable constitutional disturbance, as shown by the quick pulse and fever, but very often these diffuse cases are characterised by a low or even subnormal temperature, the pulse, however, being generally rapid. Soon there declare themselves abnormal rigidity and hyperæsthesia of the abdominal walls, with the characteristic facial expression that points to general suppurative peritonitis, but the distension is often not marked. Cases of this kind are sometimes diagnosed as perforated gastric ulcer, but the absence of any previous history of ulceration of the stomach, and above all, absence of shoulder-tip pain, enable us to exclude this latter lesion. As the case progresses it will be found that there is never present that localisation of pain in the right iliac region which is characteristic of localised suppurative appendicitis. Taking now the symptoms of this latter variety, we find that it, too, commences with epigastric pain with gastro-intestinal disturbance, especially vomiting, and with quick pulse, and high temperature. As the attack progresses we find symptoms localising themselves in the right iliac fossa, and pain is felt over the root of the appendix—M'Burney's point. There is also a localised muscular rigidity, amounting sometimes to hardness and often dulness. In addition, the posture of the patient is often characteristic, being that of the dorsal position, with the right leg flexed on the abdomen. Although there is an absence of general muscular rigidity of the abdominal walls, the abdomen in cases of localised suppurative appendicitis is often considerably distended, indicating the existence of a certain amount of general peritonitis. It must, however, be remembered that what I have called general peritonitis is *not* suppurative in its character. There is fluid in the abdomen, but it is serous, and, as Dudgeon has shown, sterile. This is a matter of some importance, for what I feel certain is that at the root of the panic that exists in connection with cases of acute appendicitis, and of the eagerness to rush for surgical aid, are the alarming constitutional symptoms that a localised peritonitis can and does give rise to, with the result that the unfortunate and erroneous idea is entertained that the surgeon's knife is going to change the whole aspect of the case and remove at once all anxiety. I wish that this was so. Unfortunately, the reverse often happens. Instead of anxiety being relieved we have a new train of symptoms set up, and what was an anxious condition becomes a serious one. One very important factor in the pathology of appendicitis is that the intestinal symptoms are no guide to the severity of the local condition. On discussing this matter with Professor Muir, who has very kindly examined a number of appendices which I have removed, and who has heard their clinical history, he has expressed the opinion that, so far, his examination of these diseased appendices removed in the interval by operation showed that the initial mischief was not a general mucous catarrh, but a small lesion in the mucous membrane by which the mischief entered and then bored through all the coats of the appendix.

When satisfied that the case is one of appendicitis, the first important point that is to be settled is whether the peritonitis present is general or local. Valuable diagnostic signs of the general suppurative peritonitis are the rigidity of the abdomen before mentioned, great and widespread hyperæsthesia, the absence of excessive distension, and often a low temperature, and the characteristic facial expression that marks the acute condition. On the other hand, localised hardness and tenderness in the right iliac region, distension of the abdomen without rigidity, with quick pulse and an elevated temperature, are indications of the localised variety of suppurative appendicitis. In the treatment of acute general peritonitis any idea of flushing or wiping out the interior of the abdomen is best left alone. Rapid laparotomy with drainage is preferable to this. As it has been tersely put, the rule in these cases should be "quick in and quicker out." To allow of proper drainage, the peritoneal cavity should be opened by a median incision low down, its interior rapidly explored by the finger for any accumulation of pus in the region of the appendix, and drainage established by means of one or more glass drainage-tubes. The patient should be placed in bed in the semi-recumbent or Fowler position and saline treatment commenced, large quantities of fluid being introduced into the rectum. No special apparatus need be employed. A catheter with tubing and a glass funnel is all that is required, care being taken that the fluid has a temperature of about 100° F., and is introduced at the rate of about 1 pint per hour. Reliance should be mainly placed on this continual rectal injection of saline fluid, but cardiac depression should be combated by strychnine, digitaline, or sparteine, given hypodermically. Stimulants may also be necessary, and the best form of nourishment is the easily assimilated albumen water or chicken tea. If gastro-intestinal disturbance is shown by vomiting and flatulent distension, powders of bismuth, soda, and grey should be given, small quantities of Dover's powder being added according to age should there be any marked restlessness. Hot boric fomentations may be employed as a dressing over the drainage-tube and changed every few hours.

In cases that are regarded as appendicular with localised inflammation, be it serous, fibrinous, or suppurative, I lay great stress on medical treatment. All its details are based on the cardinal doctrine of prevention of peristalsis of the intestinal canal. The intestines must be kept at rest. It is their movement that is the great hindrance to the localisation of an appendicular inflammation, no matter what its variety. This prevention of intestinal action can only be brought about by avoidance of all laxatives, by a semi-starvation diet, and by the use of opium. Enemata are quite sufficient for obtaining an action of the bowels. Albumen water suffices for nourishment and creates no peristalsis, while opium in the shape of Dover's powder in proportion to the age of the patient will ensure perfect quietness of the intestines. Locally, warmth in the shape of light and hot poultices and the Fowler position in bed will give relief, and add further to the comfort of the patient.

Treatment on these lines should be continued till the acute symptoms are subdued, and no idea of surgical interference should be entertained unless the pointing of an abscess or clear symptoms of the occurrence of general suppurative peritonitis distinctly call for it. My results in the treatment of acute appendicitis on these lines has given me complete satisfaction, and results which are much more favourable than those obtained by operative measures in the early stages of the disease. I have never followed the rule laid down by some, that because the symptoms are acute and violent they call for abdominal section. Such a line of treatment is an error, and sometimes a disastrous one. It is not sufficiently recognised that a great majority of cases of localised inflammation of the appendix, be it serous, fibrinous, or suppurative, may be kept localised and subdued by medical treatment, thus allowing of cases being safely operated on when the acute condition has subsided. What I have said clearly holds good with localised collections of pus. If the latter is small in amount it may be absorbed. If there is any quantity, by waiting the abscess is given the opportunity of adhering to the parietal peritoneum, when it will come to the surface and can be safely opened. I know that this waiting treatment does not find general acceptance, and there is at once raised the cry, as in the letter I have read to you, that it is almost criminal to leave such cases, as one never knows the day when the pus will burst into the general peritoneal cavity and prove fatal. All I can say is that my experience shows that it does nothing of the kind, provided proper medical and general treatment is carried out on the lines I have given you. Such collections of pus have been absorbed or have pointed into the rectum or cæcum without any bad results. Cases that have not followed any of these courses have after an interval, during which the pus has lost its virulence, been dealt with by operation quite safely.

I know statistics can be made to prove anything, but they also reveal facts about which there can be no dispute. I am satisfied that the mortality of my plan of procedure is far and away below that obtained by operative measures in the early stages of acute appendicitis; in fact, I can regard the latter line of treatment as exceptionally high. Until I received the letter I have read to-night, I had not looked into the results of the Western Infirmary, but having done so, I was considerably startled by what they revealed. I find that a paper had been prepared for an American inquirer giving the appendicitis cases in the surgical wards of the Glasgow Western Infirmary during the years 1898 to 1907 inclusive. This paper shows that during that period there were 1,007 cases under treatment. Of these 889 were cured and 118 died, representing the mortality at 11·7 per cent. Of these 1,007 cases I was responsible for 147. Of these, 141 were cured and 6 died, showing a mortality of 4 per cent. If these 147 are deducted from the 1,007 cases, it leaves a total of 860 cases treated by other surgeons during those years. Of those 860, 748 were cured and 112 died, showing a mortality of 13 per cent. It is these results that have led me to say that the plan I advocate compares favourably with the practice of my colleagues, who, I know, regard the treatment of acute appendicitis as a purely surgical one. It is those figures which I feel justify my saying that the mortality of that line of treatment is exceedingly high. I know that it is held that of recent years improvements in technique and other details have rendered the surgical preparation in these cases safer and more satisfactory. I do not find that the statistics of either our Western or Royal Infirmary bear this out. According to reports published during the years 1905-6-7, there were treated 535 cases of appendicitis in the Western Infirmary. Of these, 473 were cured and 62 died, giving a mortality of 11·5 per cent. Of these, I was responsible for 91; and of these 91 cases 89 recovered and 2 died, giving a mortality of 2·19 per cent, leaving a mortality of 62 out of 473 cases. The published report for the Royal Infirmary for 1907 shows that out of 170 cases of appendicitis there were 21 deaths; out of 26 cases of acute appendicitis with abscess, 4 deaths—that is, 25 deaths in 195 cases, giving a mortality of 12·8 per cent in cases of appendicitis, and in cases of acute suppurative appendicitis a mortality of 15·3 per cent. I think I am justified in describing this as a very high mortality, especially when we remember that many of these were operated on in the quiescent stage, when the mortality of nearly every surgeon is *nil.* Subtract this class of case from both Western and Royal Infirmary reports, and I fear that the mortality of appendicitis in the surgical wards can only be characterised as excessive. If my cases are deducted from the 535 treated in the Western Infirmary during 1905-6-7 it leaves 444 cases, of which 384 recovered and 60 died, giving a mortality of 14·4 per cent. Were these cases further analysed and divided into years, it would show a mortality in 1905 of 12·19 per cent, in 1906 of 17·4 per cent, and in 1907 of 10·8 per cent. When my cases are included the mortality is reduced to 9·6 per cent for 1905, to 14·5 per cent for 1906, and 10·1 per cent for 1907 (see table at end of paper).

When to operate.—1. When satisfied that there is diffuse suppurative appendicitis.

2. When the abscess is pointing externally, or when there is distinct evidence of fluctuation.

3. In the interval between the attacks, when pulse, temperature, and blood-count are normal.

4. If the blood-count is high, operate only when satisfied that sufficient time has elapsed to give the opportunity for the formation of parietal adhesions and for the pus losing its virulence. A great deal has been said of high blood-count as a guide to operation and as evidence of suppuration. My experience is that it is of no use as a guide in either one or the other in early stages of acute appendicitis. A high

blood-count in these latter conditions has its utility, for it shows a defensive power of the individual that cannot but be helpful. The only time when it is really a guide to suppurative appendicitis is when it remains high after temperature and pulse are normal. I would especially urge that no value should be attached to success in early operation for non-suppurative appendicitis. An unbroken record of 50, 60, or even 100 cases in that variety has absolutely no bearing upon the question we are discussing to-night, but it is because it has been introduced into this question and quoted in every case of early surgical interference that harm has been done. Cases of non-suppurative, serous, and fibrinous appendicitis may be operated upon at almost any stage, acute or quiescent, with the same results, provided ordinary care is taken, but if such a course is followed it will happen that cases accompanied by suppuration will be met with and grave risks run. Perforation and gangrene of the appendix do not call for immediate operation. Time after time I have operated in the interval on cases I have seen through the acute stage, and found both perforation and gangrene in the shape of a concretion lying amongst the adhesions. My own feeling is that if I suspect these conditions I hesitate to operate, because they are the ones so often accompanied by suppuration.

I have brought this subject before the Society to-night because I feel that it requires more enquiry than it has had. As you know, the care of acute appendicitis has passed out of the hands of the physician and has been assigned to the surgeon. Has this been for the good of our patients? I am doubtful if it has as regards the acute condition. In the interval stage there is no doubt the surgeon's *rôle* comes in, and surgery may be justly proud of its successes in that field of work. I cannot congratulate surgery on its statistics of its work in acute appendicitis. There is unfortunately a widespread belief that no reliance is to be placed on medical management in these cases, and that grave risks are run unless surgery intervenes. I cannot assent to that view. Cases of gangrene and perforation of the appendix are quoted as illustrations of cases that would have died unless surgical aid had intervened. I cannot admit that for a moment, as my own clinical experience tells me the very opposite, and the statistics I have given to-night prove at what peril to the patient the surgeon interferes, for if pus is present no technique can ensure absolute safety. In the hospital work I get the same cases as my colleagues, and none of the so-called dangers which delay is supposed to entail have presented themselves by following a waiting and expectant plan, unless there are present the distinct indications for operation I have mentioned. I am a firm believer in antiseptic surgery, but it is powerless against infection in intra-peritoneal suppuration, and it is not fair to expect it to do what it is unable to accomplish. Until we have a vaccine that will neutralise the virulence of intra-peritoneal pus in connection with localised suppurative appendicitis, I believe our wisest course, and one that is best for the patient, is to wait and allow the virulence of it to subside, as I believe it does, through the agency of the local leucocytosis that is present, and then to operate. That is my firm conviction, and I place it before you to-night for your consideration and criticism.

APPENDICITIS.

TOTAL CASES IN WESTERN INFIRMARY DURING THE YEARS 1905, 1906, AND 1907.

	Cases.	Cured or Relieved.	Died.	Percentage of Death.
1905, . .	155	140	15	9·6
1906, . .	193	165	28	14·5
1907, . .	187	168	19	10·1
Total, .	535	473	62	11·58

IN SIR GEORGE BEATSON'S WARDS.

	Cases.	Cured or Relieved.	Died.	Percentage of Death.
1905, . .	32	32	...	...
1906, . .	38	37	1	2·6
1907, . .	21	20	1	4·7
Total, .	91	89	2	2·19

TOTALS IN ALL OTHER WARDS.

Cases.	Cured or Relieved.	Died.	Percentage of Death.
444	384	60	14·414

CASES IN OTHER WARDS, LESS SIR GEORGE BEATSON'S CASES.

	Cases.	Cured or Relieved.	Died.	Percentage of Death.
1905, . .	123	108	15	12·19
1906, . .	155	128	27	17·4
1907, . .	166	148	18	10·8

MR. T. KENNEDY DALZIEL.

When requested by the Council of the Medico-Chirurgical Society to give a contribution to the discussion on suppurative appendicitis, especially in relation to treatment, I consented with pleasure, feeling that the subject was well worth a careful discussion: and while the particular phase of the subject limits the discussion, I would like, as of assistance to appreciation of the proper line of treatment, to make a few remarks on the anatomy of the appendix.

I believe the cause of appendicitis is a stricture of the canal—in the first instance, at the opening into the cæcum, where, in addition to the usual fold of mucous membrane, we have an abnormal contraction whereby secretion is retained, and the *débris* of digestion is rolled into the concretion; or it may be a foreign body, such as the proverbial orange-pip, be imprisoned and give rise to a catarrh, followed by ulceration and may be suppuration. This stricture of the appendix acts on the organ as stricture at the orifice of any hollow viscus does, well seen in the urinary bladder, the gall-bladder, the stomach, and so forth. This stricture varies widely in degree. The ideal appendix is funnel-shaped, and is safe; this condition, as a rule, is found in children, though not constantly. As development proceeds, the increasing power of the colon, with its muscular development, tends to narrow the orifice, and it is probable that in this change we have one reason why appendicitis so often becomes apparent as the patient advances to puberty. Given an appendix so formed, it is easy to understand how a catarrh of the colon, resulting it may be from a chill, possibly as a part of the general catarrh of the colon, or the irritation of a foreign body may, by the resultant œdema of the orifice, lead to complete occlusion and retention of the secretion. This retained matter, already septic, finds in the appendix a culture tube in which bacillus coli, staphylococci, and occasionally streptococci are found.

Unless the increased tension of the appendix causes the obstruction to yield, and the contents of the appendix to escape into the bowel, with consequent rapid recovery, we have to face the problem of a series of pathological changes which may, and usually do, lead to suppuration. Such cases are liable to rupture without preliminary adhesion, and form one type of the much dreaded fulminating appendicitis.

Should the obstruction of the orifice be incomplete, a more chronic course will be followed—catarrh, more or less suppuration, ulceration which may lead to perforation or gangrene, especially if the artery of the appendix mesentery be attacked and blocked by the resultant thrombosis. The sepsis in the appendix may lead to suppuration in the corresponding lymphatic glands, and it may affect the peritoneum without any gross lesion to the wall, the germs apparently travelling through the lymph spaces, and setting up a localised or diffused peritonitis.

In relation to the appendix, then, we must recognise the following suppurations:—(1) In the cavity, either in the whole, or it may be in part; (2) *intramural*, where we have small discrete abscesses scattered through the tissue; (3) *abscess* immediately round the appendix shut off by adhesions; (4) general suppurative peritonitis; (5) and, lastly, *suppuration* in the lymphatic glands infected from the appendix.

The first of these, which one may term suppurative catarrh, is generally attended by some inflammation of the wall—it may be with slight fibrous inflammation of the peritoneal covering. The whole organ may be distended with pus, as in a case I saw with Dr. Alexander two months ago. A gentleman, over 70 years of age, enjoying robust health, had his first pain early in the morning, and Dr. Alexander, noting the condition and fearing the consequences, asked me to see him. We operated before midnight the same day, after a consultation with Professor Gemmell. We found the appendix distended with purulent catarrh, the peripheral end of the mucous membrane being necrosed; the organ was removed entirely, when it was found that there was a complete occlusion of the lumen at the orifice.

A few months previously I had seen a professional brother who first became ill about 7 o'clock in the evening; seen at 10 o'clock, it was quite evident from his rising pulse and temperature that we had to deal with some serious form of appendicitis. The operation was performed about 11 o'clock, when the appendix was found to be occluded about its middle, and an acute abscess formed in the peripheral half.

Of the second variety—the intramural—I have only seen two examples, one in a child of 12, and another in a man of 34. The evidence of septic infection being distinct from the first onset of symptoms, I advised operation, and was able to remove it before any extension of the suppuration had taken place to the surrounding peritoneum. The wall of the appendix in the last case was found riddled with small abscesses, some like blisters, on the surface.

The other three suppurative manifestations are usually associated with ulceration or gangrene. Ulceration may be due to other causes than foreign bodies or mere septic infection. Thus, in enteric fever, in tubercle, in dysentery, and in cancer, we may have perforation and abscess; gangrene may follow in the train of ulceration as already indicated, or may be due to the intensity of the septic infection.

The third form of suppuration—the localised abscess—is determined by the occurrence of adhesions, is favoured in some cases by the locality of the organ, assisted by previous attacks of inflammation, and also by the chronicity of the individual case—the clinical picture of the case is sufficiently familiar to all. I would only point out that in some cases of suppuration the constitutional disturbance may be singularly slight, though a persistent swelling, attended with some tenderness after the constitutional symptoms have passed away, should make one suspect the presence of a focus of pus. When the appendix is retro-cæcal the case is undoubtedly favourable to localisation, though the locality of the pus may extend from the illiac fossa to the liver.

No doubt an appendix abscess may occur in any part of the abdomen, just as an appendix may be found anywhere. Quite recently I had to remove the appendix from the surface of the spleen. No doubt, also, abdominal abscesses may arise at a distance from the appendix where there has been a preliminary wave of peritonitis, and some particular spot becomes the seat of a pyogenic culture too great for the peritoneum to destroy. Not infrequently the pouch of Douglas is the seat of suppuration, in which case it is difficult (in many cases) to determine whether the pus has originated in the appendix or in the Fallopian tube. In one, case, indeed, which I saw with Dr. M'Kerrow, of Ayr, the patient, who was delirious and extremely ill, had a rupture of both the appendix and Fallopian tube: it was interesting that Dr. M'Kerrow diagnosed a ruptured appendix, while I ventured to diagnose a ruptured tubal abscess. Specimens of both were obtained, and proved each of us to be right. The patient subsequently made a good recovery.

Such localised abscesses vary in their activity in the abdomen or elsewhere, according to the micro-organisms present and to the idiosyncrasy of the individual. We take it for granted that pus formed in such cases requires exit, and if left will destroy tissues till exit is obtained either on the surface of the body or into some hollow internal organ. I have seen two such cases where the abscess opened into the bladder, one where the ureter was opened, and a considerable number of cases where discharge took place into the intestine;

and two cases of this kind were attended with extensive sloughing of the wall of the bowel, followed by fæcal fistula. Undoubtedly the most favourable internal route is by way of the intestine. I fear the general experience will be that such cases have prolonged convalescence, and not infrequently recurrence of the disease. In course of such septic process other dangers arise; undoubtedly in some cases, though I grant not in many, the localised abscess may, by a sudden increase of pus, lead to general and rapidly fatal peritonitis. Such a case I saw about six months ago with Dr. Lithgow, of Cleland. The patient, a girl of 15 or thereby, had the usual symptoms of appendicitis, followed by abscess apparently well localised. I saw her in consultation late at night, and advised operation. The conditions, however, were not favourable, nor had I materials with me; we, therefore, arranged that I should return in the morning. When seen, there was no doubt as to the complete localisation, and the general condition was favourable. A small dose of opium was administered, and a warm antiseptic fomentation had been applied. When I reached the house next morning it was amply evident that the abscess had burst into the peritoneum, and the patient was sinking; no operation was attempted, and she died within an hour or so.

I have notes of three similar cases, where, at the end of ten days, the condition was changed from local abscess into this worst of all forms of appendicitis.

I would further draw attention to the danger in allowing suppuration to progress, namely, to occurrence of septic thrombo-phlebitis, followed by septicæmia and pyæmia, and death long after local suppuration had been overcome. In two cases only of these have I ample proof, but three others in my experience give all the clinical features, though we were not able to obtain an examination. One case, Mr. W., whom I saw with Dr. M'Gregor-Robertson on the fourth day of his illness, had well-marked thrombo-phlebitis. At the time of operation the appendix was apparently gangrenous, and bathed in pus; it was entirely removed, and we had no subsequent trouble with the peritoneum. I expressed the opinion at the time that the issue was extremely doubtful; the patient lived for some weeks, and died of typical septicæmia.

Another case I saw in consultation some time after operation. The appendix abscess had perforated the ureter, and, although there was some escape of urine, this did not seem to give rise to trouble; but after some weeks of continued high temperature he died, evidently from septicæmia.

In my notes I find a case of a middle-aged woman whom I saw with Dr. Revie, of Kilmarnock. She had a large abscess, pointing in her lumbar region, opened, and death occurred seven days afterwards from well-marked septicæmia. Cultures made at the time at the opening of the abscess showed the presence of streptococcus as well as bacillus coli. In none of these cases in which localised abscess had occurred, and had been opened, had we any subsequent general peritonitis.

On looking over my cases for the past three years, of the six deaths I have had following localised abscess, in no case has death been due to peritonitis following operation. In four of them we had a marked septicæmic condition.

General suppurative peritonitis forms a group of the most trying cases which a surgeon can be called to treat: the intensity of the infection varies much, as do the clinical features. A mild general peritonitis may arise without gross perforation or gangrene, and in many such cases the peritoneum is able to dispose of the infection. As a rule, however, in peritonitis originating in the appendix the case is as unfavourable as any perforative appendicitis can be. Apart from the general vitality, the mortality of the operation, in my opinion, will largely depend on the pyogenic cultures. It is unnecessary to go over the symptoms and physical signs which we all know so well: one can only repeat that the temperature in many cases affords as poor an index as the amount of suffering. The prognosis can be more accurately estimated by the condition of the pulse, and by the general facies of the case.

In my experience, infection of the peritoneum with streptococcus is usually fatal, while infection with bacillus coli is correspondingly more hopeful. Between the extremes one would place mixed infection of bacillus coli and staphylococci; the evil effects of the latter being sometimes delayed, secondary localised abscess causing trouble after the acute peritoneal condition has subsided.

No matter how ill the patient may be, recovery may follow appropriate surgical interference, whether the infection be with a bacillus coli, as instanced in the case of a man I saw with Dr. Sanders, in Lochmaben, whose abdomen was distended with pus, and who seemed moribund, but who recovered after the abdomen had been washed out: and a case which I saw with my friend Dr. Semple, where, while evacuating the pus from the peritoneal cavity, the intestines ruptured in four places from extreme distension. These rents were sutured, and gangrenous appendix removed, when, in spite of a very grave prognosis, the patient made an uninterrupted recovery. The infection proved to be a pure bacilli coli.

Abscesses occurring in lymphatic glands. These only need mention, being of a comparatively rare occurrence. Only three cases have come under my observation. Fatal peritonitis followed rupture of the abscess in one case; the other two were treated by evacuation and packing, followed by recovery.

Treatment.—I take it, the only question which can be raised in regard to the treatment of such cases, in reference to the localised abscess, when the suppuration is confined to the appendix, its immediate excision is clearly the one and only safe course. I do not suppose any surgeon would suggest another line of treatment were he certain of the pathological condition, nor do I suppose there could be any question as to the propriety of immediate operation where we have to deal with the general suppurative peritonitis. There only remains the question of the line to be followed where delay has occasioned the formation of an abscess apparently localised. One may say at once that if the abscess remain localised, we may wait until adhesions have formed with some measure of safety; in but few cases will the pus be absorbed. I am inclined to think that in most supposed cases of absorption the pus really escapes by an opening into the intestine.

During this process of waiting have we, however, no dangers to contend with? That the general peritonitis does occur from the rapid extension of the abscess I have no doubt whatever. I find four such cases in my notes where unavoidable delay in operating was followed by general peritonitis so serious that only in one case was operative interference attempted to save life.

The other dangers which delay, otherwise of value, occasions are thrombo-phlebitis, septicæmia, injury to internal organs, and, lastly, the difficulty in such cases of removing the remains of the appendix, with consequent recurrence of trouble. For many years I was accustomed to wait until fluctuation became distinct in localised suppurations, but lately I have practised early operation for the evacuation of pus as soon as the diagnosis of acute appendicitis could be made, and I have no cause to regret this course. Neither in hospital nor in private has one death occurred in simple appendicitis, nor have we had any fatality when the operation has been performed within forty-eight hours from the onset of the disease, and when the appendicitis proved to be purulent and the pus was confined within the organ. In general peritonitis we have a mortality of 1 in 5. In localised suppuration round the appendix my practice has been now for years to operate at once, making every endeavour to remove completely the gangrenous or perforated organ. In no case have I been conscious that peritonitis followed the operation. Four deaths have occurred in fifty-three cases where my notes indicate localisation of the pus, three of these from septicæmia, in from seven to twenty-one days after evacuation of the pus; in all the infection being streptococcal.

I can find no argument for delay in evacuating foul pus from the abdomen as early as possible, unless it be the danger of originating a general peritonitis, which, in my opinion, need not occur if the operation be carefully carried out in proper conditions. It is most important, if this line of treatment be followed, that the diseased appendix be removed, as if the focus of infection be left, the peritoneum is over-handicapped, and I believe general peritonitis is not unlikely to follow.

That abscess can be opened early with safety my statistics clearly prove. The four deaths recorded include two who were moribund when seen, and two were not early operations, but late, when septicæmia and not general peritonitis caused death.

I do not know how septicæmia and pyæmia are to be prevented in abdominal suppuration, unless it be by early operation.

The technique of the operation necessitates a fairly free incision, careful packing with gauze any free peritoneum, thoroughly clearing out by swabs all pus, removing concretions and diseased or dead tissue as far as possible, and, as seems advisable, packing the wound with gauze for four days, and thereafter stitching the wound. Should the sepsis be acute, repacking several times may be necessary, and I find it better to repack in such cases on the second day.

Generally, washing out is to be avoided, though much good may be obtained in some cases by sponging the abscess cavity with peroxide of hydrogen.

In regard to the statistics of the Western Infirmary, it is to be noted that they give no indication of the stage of the disease. The great majority of these cases, I have no doubt, are general septic peritonitis. The hospitals are the dumping-ground of dying appendix cases.

DR. DONALD MACPHAIL.

The opportunity afforded by the invitation of the Council of the Society to take part in a discussion on appendicitis is a very welcome one, as there is great difference of opinion in the profession as to the treatment of the disease. Appendicitis, from the point of view of the hospital surgeons and consultants who write on the subject, would seem to be a different disease altogether from what is met with in general practice. To the specialist it seems to be a dangerous and deadly disease, which requires to be dealt with promptly by heroic methods; to the general practitioner a very manageable ailment, easily conducted to a favourable termination by very ordinary remedies. These are the extreme points of view, and, as usual, the truth lies between them. My own field of work has been general practice of the most promiscuous kind, and my own experience leads me to favour the general practitioner's point of view. During my twenty-seven years' work I have had many cases of appendicitis to treat, and no case that I have had charge of from beginning to end has had to come under the surgeon's knife, and no case has died, and I can quote similar experiences of men of longer and wider experience than mine. But the writers have shown us, and so has occasional experience in such consulting and hospital work as has come my way, that no case of appendicitis should be treated lightly, as every one has in it the elements of a possible catastrophe. It is the catastrophes, which come under the notice of the hospital surgeons in abnormal proportion, that colour their views.

The billet calling this meeting showed that the discussion was to have a limited range, and the first impression was that it left room for little discussion beyond points of diagnosis and details of treatment. That this was a wrong impression must be very evident to those who have heard the previous speakers, for questions have been raised which would require for full discussion much more time than is at our disposal.

I have to apologise for not being quite so well prepared on certain points as I should have liked. I was just sitting down at a late hour last night to put my rough notes into shape when a telephonic message called me to our local hospital to deal with a case of suppurative appendicitis just admitted. So my notes remain rough. I shall describe the case later, as it is to the point in several particulars.

From our earliest student days we have all been familiar with the rule that whenever you are sure that you have pus in an accessible situation it should be let out. It is a good rule, but it has its exceptions. Sometimes, even from the pathological point of view, there may be something to gain from delay, and sometimes the surroundings of the case may make delay imperative, and probably most of us have seen cases, not of appendicitis only, where regret at not being allowed to act at an earlier stage was replaced later by satisfaction at the result. In the case of appendicitis the presence of pus is almost always a grave menace to the safety of the patient, and the rule to let it out holds good. But from this point of view cases differ very much in urgency. In all the cases of the kind under discussion there is effusion, but it may not be frankly purulent, and even if purulent the pus may vary much in virulence. In the great majority of cases seen in general practice the effusion is something which may be absorbed even though the quantity may be large. It is not uncommon to see a tumour in the right iliac fossa, reaching well up towards or near the umbilicus, shrink steadily, and in time leave no tangible trace. Sir George Beatson has properly insisted on the difference between localised abscess and diffuse peritonitis, and it is all the world of difference. In the one class the patient, under proper care, is in most cases in little danger, and time usually lessens the danger; in the other, the danger is very great from the beginning, and delay increases it with great rapidity. But even in localised cases close alert supervision is necessary, as a slight indiscretion or accident may in an hour or two place the patient in the gravest danger.

The first point in treatment is to know when pus is present, and the second is to see when the mischief is progressive. The signs and symptoms described in the books are numerous, but there is no one reliable except seeing the pus. As is so often the case in other diseases, the general practitioner, who knows the patient and can judge of his condition in the light of his knowledge of physique, temperament, family tendencies, &c., has the advantage over the consultant, who sees the patient for the first time when the patient is very ill, for you can trust some patients much more than others to make a good fight for recovery. Then it is a great advantage to know the history of the case, for without that, except in the most serious cases, it is impossible to know whether things are improving or getting worse. Acuteness of onset is not always a reliable point, for cases may look bad at first and clear up rapidly, vomiting, fever, and pain diminishing in a wonderful way. Pulse and temperature are very uncertain signs, in the earlier stages especially. Later, a lack of uniformity in their course is important, and then the pulse is of much more importance, for a rising pulse is a bad sign even with a falling temperature. Rigors at an early stage are not common, and not of importance unless persistent; at a later stage they are of more serious import. Hiccough is not common: when present it is usually a grave sign. Pain may be severe and general at first, and yet rapidly become limited and quite bearable. A sudden lull, not accompanied by improvement in other symptoms, is a bad sign, and the recurrence of general pain is worse. As regards general condition, early lapse into a typhoid condition is decidedly bad, and even worse is a condition, occasionally seen, which may be called "florid collapse," when the face is flushed and rosy, the eyes bright, and the lips brilliantly red, while the patient may be gasping for breath and the pulse so small and quick as to be almost uncountable. I have never seen that condition except in fatal cases of suppurative peritonitis. It is a very different thing from *facies Hippocratica*, which the books mention as characteristic, and which is certainly a bad sign. The abdominal physical signs need not be described, but it is certain that it may be fallacious to judge of them without having the patient under chloroform, for under chloroform the mischief is sometimes found to be more limited than it previously appeared. The relaxed muscles sometimes allow a pointed bulging to appear in the right iliac fossa, indicating a well-limited lesion. Rectal and vaginal examinations are often valuable aids, but are of much less value without a general anæsthetic. Local œdema is a valuable positive sign; the absence of it tells nothing. Leucocytosis may be a valuable aid in hospital; in general practice it is not often available. The last test, in localised cases chiefly, is the exploring needle or aspirator, but I think most will agree that these should not be used except where it is possible to proceed at once to operation should pus be found, and certainly not where there is a prospect of the patient having to be conveyed to hospital afterwards.

The discussion of the medical treatment of appendicitis is not quite in order this evening, but the question as to the use of opiates may be referred to, as it is supposed by many to have a relation to the question of diagnosis. We are forbidden to use opiates because they "mask symptoms," and, I suppose, interfere with the specialist's power of diagnosis. But if they mask symptoms, they certainly also diminish suffering, and so favour cure. To do that it is not necessary to narcotise patients so as to make them look "typhoid" when they are not, and to withhold the remedy that can so diminish distress and relieve anxiety has always seemed to me to be cruel. Small doses, cautiously repeated and carefully watched, give relief which nothing else can, and they not only give relief but they also diminish danger. I have for a long time given frequent small doses of liq. morphinæ, with tinct. belladonnæ or liq. atropinæ in corresponding doses, usually combined with magnes. sulphate, also in small doses. The use of the last may be deemed another heresy, but it appears to keep the bowel and its contents in a more natural condition, preventing stasis and the formation of scybalous masses by encouraging both secretion and peristalsis within safe and beneficial limits.

On the question of treatment of the class of case under consideration to-night, it would be presumptous for me to expatiate. It will be clear that I am wholly in sympathy with Sir George Beatson in deprecating over much zeal and haste in operating on localised cases, and it might be suggested that if so many of the cases do so well when the operation is delayed, some at least might do as well if not operated on at all. But there can be no doubt that if operation is imperative, success depends very much on speed and thorough drainage. For speed free openings are necessary, and for thorough drainage openings in dependent situations are the best, and large tubes are the best drains. Even with the aid of intra-abdominal tension pus will run downhill rather than uphill, and the more easily in any direction if not obstructed by a gauze plug.

In conclusion, let me briefly describe our last night's case. A healthy young man came home from his work in a distant town on 13th February, having had abdominal pain and slight sickness since the 9th, not bad enough to keep him off work. He was seen by a doctor on the 15th, who diagnosed appendicitis. The symptoms were not urgent, but the intra-abdominal swelling was fairly large and more to the middle of the abdomen than usual, extending a little across the middle line. All went well till 4 P.M. on the 18th (yesterday). He had been up at stool on a commode by his bedside, had had an easy motion, and had been back in bed a few minutes when he suddenly became very ill, with general abdominal pain and urgent vomiting, but was not collapsed. At 9 P.M. he was seen in hospital. Then his face was natural in appearance. Pain was severe and vomiting incessant.

Temperature was 97·2°, pulse 140. His abdomen was slightly tumid, fixed, and rigid, and extremely tender all over. After he was under chloroform and ether, percussion was found to be dull in the hypogastrium up to two-thirds of the space between umbilicus and pubis, though urine had been passed immediately before, and in the right flank. There was no distinct tumour, but there was increased resistance in the right iliac fossa. There could be no debate as to the proper treatment, and operation was done at once. The usual incision on the right side gave exit to a gush of thin foul-smelling pus. As the pus seemed to come from the middle line another incision was made low down there, and by it more pus came from the pelvis as well as from a collection among the bowels higher up. Through the first incision a collection of pus in the right flank was discovered, and while making a drainage opening in the right loin another collection was found high up there. An opening for drainage was also made in the left loin. As time was valuable, the abdomen was flushed out with hot sterile saline solution, which came back clear in less than two minutes. Large rubber drainage-tubes were put in through all the openings, and the wounds closed round them. He had two hypodermics of strychnine during the operation, and one of a pint of saline solution immediately after. Half an hour after the operation he was sensible, free from pain, with a pulse of 104, of better quality than it was before the operation.

The case affords numerous points for discussion, but I content myself with describing it. It may be made to give points to subsequent speakers.

Mr. Maylard said that, in order to contribute something which he trusted might be of some value in the discussion, he had, with the aid of his resident assistant, Dr. Stevenson, gone carefully into the records of all the cases of appendicitis admitted to his wards in the Victoria Infirmary, and which had either been under his own observation and treatment or, in his absence, under that of Mr. Grant Andrew or Mr. Farquhar Macrae.

The total number of cases was 321. Of this number, 294 had been operated upon. Abscess in some shape or form was present in 127—that is, 43·5 per cent of all cases operated upon. In 49 cases of the 127 the abscess had alone been opened, while in the remaining 78 the appendix was also removed. These 127 abscess cases included many of an advanced and severe type of the disease—gangrene of the appendix, general suppurative peritonitis, pyæmia, and toxæmia. In 49 cases in which the abscess was alone opened, 5 deaths ensued, or 10·2 per cent. In the 78 cases in which the appendix was removed there were 23 deaths, or 29·5 per cent. It would, therefore, appear as if it were safer to simply open the abscess and drain than attempt removal of the appendix at the same time. Adding somewhat to the correctness of this inference is the fact that in two cases where adhesions to the parietes had not shut off the general peritoneal cavity from the abscess cavity, infection of the former ensued, with a fatal result. It would, however, be quite wrong to conclude in either of the above two classes of cases that, with the exception of the two instances just quoted, death had in any way been the result of the operation. Indeed, in not a few cases a fatal issue was inevitable with or without the adoption of any measures.

I wish it to be distinctly borne in mind that I am confining my remarks to the question of abscess formation in conjunction with appendicitis. The many dangers to which a patient is exposed so long as pus remains in the body, and more particularly if, in association with the suppuration, there exists a gangrenous appendix, have been fully referred to by Dr. Dalziel. If these possibilities be taken into consideration together with what the above statistics show, it is impossible not to conclude how enormously the risks of the disease are increased when pus is present. The real practical point at issue is whether, when an abscess is known to exist, or is strongly suspected, we should allow it to remain until such time as it is sufficiently near the surface of the body—skin, or rectal or vaginal mucous membrane—to be easily opened; or whether we should consider its existence, obvious or suspected, sufficient reason for attempting its removal whereever it may be located. Either course involves risks. No surgeon of any experience, however, can feel he is doing his duty in leaving a patient exposed to all the dangers of pent-up pus in the abdomen any more than he would consider himself justified in not giving free exit to pus in any other part of the body. But I would venture to add that no surgeon should proceed to the removal of the appendix at the same time unless he is prepared to exercise, *to the fullest extent*, all the precautions needed to prevent infection of the general peritoneal cavity.

My own practice is, after opening the abdomen, to pack off the surrounding parts carefully; wipe away the pus with pledgets of gauze as it oozes out from its cavity until the latter is quite dry; seek for and remove the appendix; freely swab out the pus cavity with pure carbolic acid; dust copiously with pure iodoform; and, finally, stuff and drain. If other and graver complications do not co-exist, such treatment is usually followed by the best results. The particular detail to which I attach the greatest importance is the thorough removal of all pus before any attempt is made to break down the necessary adhesions to freely liberate and expose the appendix.

I would only add, in conclusion, that I trust the day is not far distant when a discussion such as this will be deemed antiquated. Just as we look back to the time when the fœtid, so-called perityphlitic abscess—which we now recognise as appendical—was allowed to burrow and burst in all directions, sometimes even reaching the opposite side of the body before it was opened, so let us hope that early operation upon all cases of acute appendicitis will permit us to regard the mere formation of an appendical abscess of the smallest dimensions a pathological entity of the past.

Dr. Kenton said that suppurative appendicitis was largely preventable, and was not now so common since medical men were sending cases in earlier to have their appendices removed to avoid suppurative appendicitis. He agreed with Dr. Dalziel that the virulence of a case depended upon the organism present. Streptococcal infection was the most virulent. Unfortunately it was impossible to find what organism was present until the abscess was opened.

In the great majority of cases the sooner the abscess was got rid of the better, the more so as this could now be done with safety. In early cases, after the pus had been evacuated, the appendix could be removed with perfect safety. In later cases he put in a drainage-tube and removed the appendix at the end of a week. The appendix did not shrivel up of itself.

In his wards in the Western Infirmary he had operated in the last five years on 83 cases of suppurative appendicitis; of these, 2 died. These 2 cases might have been classed as cases of general peritonitis. One had a large abscess with general peritonitis. He took a rigor on the table the morning of operation, and the operation was postponed till the afternoon. He had a large abscess under the liver and multiple abscesses elsewhere. At *post-mortem* only half the abdomen was involved in the inflammatory condition. In the other case, he evacuated a large collection of pus, and the patient died next day from general absorption, which commenced before operation.

He treated gangrenous appendicitis as he did cases of ruptured gastric ulcer, namely, by prompt operation. In this way the risk of general peritonitis was avoided. Rupture of a localised abscess recovered if operated on, but a case of general streptococcal infection which had been allowed to go on for three or four days was not favourable for operation. Such a case should have been operated on earlier; the symptoms were generally quite characteristic, especially the intense pain.

Dr. Knox was surprised to find that Sir George Beatson's proposals were of a retrograde nature. He (Dr. Knox) had expected to hear of a new method of treatment. When he began to operate the rule was to treat appendicitis medically until acute symptoms had passed off, and the patient in a favourable condition for operation. This rule he had followed for many years, but now regretted it. In recent years he had operated early on all cases coming to his wards. Speaking from memory, he had operated during the last three years on 105 cases of appendicitis, with 5 deaths. Most were cases with pus formation. In several, general peritonitis was present. He had not seen in this series any case of diffuse suppurative peritonitis. He agreed with Sir George Beatson that it was not fair to consider the serous fluid sometimes found as evidence of suppuration. The number of cases with localised abscess was very great. He had cases where the abscess had burst into the bladder and into the caput cæcum, and two others complicated by fæcal fistula. In one of these this complication had occurred before coming under his care. In face of such dangers he did not see that one had sufficient grounds for delaying to open the abscess.

The use of opium had been condemned to-night, but he had seen cases in which a great deal of distress was present following the use of magnesium sulphate, and this distress was greatly relieved by opium in small doses, preferably in the form of Dover's powder frequently repeated. He had never found the administration of opium any disadvantage.

In private practice one had a better class of cases, and the results of operation were more favourable. The death-rate in his cases worked out at about 3 per cent.

Dr. Alex. MacLennan wished to ask Sir George Beatson whether, after the abscess had been absorbed, as in the case quoted, he would dismiss the patient to go about as usual, or then remove the appendix? He considered that after a discussion like this some definite conclusion should be arrived at as to what students were to be taught. He strongly held the view that a case should be operated on as soon as the diagnosis could be made. Cases obviously improving might be left for three or four days.

Mr. Pringle was unable to agree with Sir George Beatson. Wherever pus existed it ought to be evacuated at the earliest possible moment, whether the pus was in the abdomen or elsewhere. A gangrenous appendix, if left, would result in a localised abscess or in a general peritonitis. Provided operation was done at the earliest possible moment, he had not seen any bad result. In a large number of cases the appendix could be removed and the wound completely closed. The element of time was of great importance. It took from ten to twelve weeks generally before the abscess healed up. Some cases might heal up in eight weeks. In his last 80 cases of infection arising from the appendix, all cases with localised abscess recovered: 15 cases were complicated with general peritonitis, and had a considerable mortality. He did not see any difficulty in protecting the peritoneal cavity at the time of operation, and he thought the appendix should be removed at the same time. The results he had seen from waiting were fæcal fistula or general peritonitis. He had never seen the abscess rupturing into the bladder or bowel. These were complications to be avoided. Vaccine treatment he had found very useful. It diminished infection. Treatment by opium or morphia he condemned, unless an operating surgeon was not available. He believed that as soon as it was diagnosed that a patient had appendicitis the proper treatment was to remove that appendix. The symptoms were usually quite well defined. All severe cases began with severe pain, followed by vomiting. The pain might be diffuse for a time, but soon became localised. In such cases the appendix should be at once removed, and if this were done, general peritonitis and certainly localised abscess would be avoided. In perforative appendicitis the appendix was very easily removed. In cases which are improving, the abscess should be tapped; this removes tension, and, the danger being over, the appendix can be afterwards removed.

Dr. Macphail, in reply to Dr. Snodgrass, said that the death-rate from appendicitis in practice was very small indeed, and that in twenty-seven years he had had no death from appendicitis, and no case of his had been operated on, though he had freqnently been called in consultation to see severe cases in their hospital which had required operation, such as the one he had already referred to to-night. He considered that each case had to be considered on its merits, and that no dogmatic line should be taken up.

Dr. Dalziel said that, the consensus of opinion being in favour of early operation, there was little for him to add. Dr. Renton was mistaken in supposing that he removed the appendix in all cases at the first operation. He did so in cases of early abscess. In late abscess, with well-defined and firm walls, one naturally cleared out the pus and at some later date cut down and removed the organ. Dr. Macphail said he did not see fatal cases of appendicitis in practice. He (Dr. Dalziel) thought this was largely explained by the fact that they came into hospital with general peritonitis and died without operation. He would agree with Dr. Macphail that the middle course with regard to opium was the safest. He thought it right to administer sufficient to ease pain, but not enough to paralyse the intestinal canal and to dull the patient. Flatulence and distension could be relieved by the use of the long rectal tube. Even washing out the stomach was useful. Nourishment was interfered with and the phagocytic power influenced if the peritoneum was kept stretched.

Sir George Beatson doubted the statements made to-night that an abscess in the peritoneal cavity could be dealt with on the same lines as an abscess in another situation, when the peritoneal cavity could be so easily infected. He did not understand surgeons, who would never dream of opening an abdomen because they had been in contact with pus, taking this view. Nor could he explain the statistics given. He could not help saying there must be something wrong, or else he had not been getting the same class of cases as his colleagues. Dr. Dalziel had remarked that 53 of his cases were cases of general peritonitis, and had been sent in as such. He was anxious to know what was the best line of treatment, and he firmly believed in treating such cases medicinally until symptoms were quietened, and operating afterwards. In reply to Dr. MacLennan's question, he would not leave pus in an appendical abscess indefinitely, but he left it until the virulence had abated, and then, within a fortnight or three weeks, the case could be safely dealt with. This was his reason for delay, and he considered he was acting rightly.

FRESH SPECIMEN.

Dr. Arch. Young showed a gangrenous appendix.

REVIEWS.

Manual of Diseases of the Ear, including those of the Nose and Throat in Relation to the Ear. By Thomas Barr, M.D., and J. Stoddart Barr, M.B., Ch.B. Fourth Edition, entirely revised and largely rewritten. Glasgow: James MacLehose & Sons. 1909.

When a text-book has run through three editions it may be regarded as a proof of its excellence, and as a compliment to its author.

The present is the fourth edition of the well-known manual, and in this volume Dr. Barr has associated with himself in the authorship his son, Dr. Stoddart Barr, who has written the two chapters on diseases of the nose and throat and their treatment.

The recent literature in rhinology and otology shows great advances. To meet this the chapters have been largely rewritten and brought thoroughly up to date. A section has been added on labyrinthine suppuration, and another on otosclerosis.

As befits the importance of the subject, purulent inflammation of the middle ear demands, and receives, considerable attention. The mastoid operation and the after-treatment are well discussed and described. The symptomatology and operative treatment of the intracranial and vascular complications of purulent middle-ear disease are specially well written, and the interest and value of these chapters are greatly enhanced by the short records of interesting clinical cases from the author's ripe experience.

A feature of the book is the excellence of the illustrations.

In the present volume there are 3 plates with 45 coloured figures of the tympanic membrane and middle ear, showing the normal membrane and pathological conditions. In addition to these there are numerous black and white illustrations, all of which are excellent. As in previous editions, the work is well indexed.

In short, the book is well written and up to date, and abundantly and beautifully illustrated. It is one of the best books on diseases of the ear that we have met with. We can most cordially recommend it. Student and general practitioner will find here all they need and all they want.

Fevers of the Tropics. By LEONARD ROGERS, M.D., F.R.C.P., F.R.C.S., B.S., I.M.S. London: Henry Frowde and Hodder & Stoughton. 1908.

"I HAVE attempted in this work to write an original account of fevers in the tropics, mainly based on the notes and charts of some two thousand cases in which I have personally examined the blood by modern diagnostic methods." Such, in the words of the preface, is the author's own description of this book. Anyone familiar with recent researches in tropical medicine must know of Major Rogers' share in that work, and will at the same time recognise that he writes as one who has a first-hand knowledge of his subject, and, indeed, as one who has already added in no small measure to our understanding of these tropical diseases. The book, however, it seems to us, is written more from the standpoint of the pathologist than that of the clinician, for reading the description of the symptomatology of the various fevers one cannot but feel that it is the pathologist rather than the clinician who is describing them. The symptoms are, no doubt, duly set forth, but not always in such a way as to convey to one's mind a graphic picture of the disease. One feels, in short, that the author might have handled his material better and given a more consecutive and less disjointed account of what he had to say. The attention, too, devoted to the several fevers seems at times somewhat unequal. For instance, sixty-five pages are required for Kāla-azār, whereas forty-one pages suffice for malaria, forty for enteric, twelve for Malta fever, and sixteen for plague. But in spite of all this, the book is most interesting reading and full of much useful information.

The fevers dealt with, besides those just mentioned, are trypanosomiasis, Indian relapsing fever, the pre-suppurative stage of amœbic hepatitis, epidemic dropsy, "unclassified long fevers," dengue, yellow fever, sunstroke, seven day fever, and three day fever. There is also a chapter on the "Incidence of various specific fevers in the tropical East—(*a*) typhus; (*b*) cerebro-spinal fever; (*c*) influenza; (*d*) exanthematous diseases." These are all amply illustrated by plates, maps, and temperature charts—there are 82 charts in the book—and these add greatly to the elucidation of the text.

Of the book as a whole we cannot but regard it as a notable contribution to the literature on fevers of the tropics, but at the same time we doubt if it will ever occupy the place of the more systematic text-books on tropical medicine.

County Council of Lanark: Seventeenth Annual Report of the County and District Medical Officer. Glasgow. 1907.

THIS bulky volume is on the lines of previous reports reviewed in these pages *in extenso*, and there are no essential differences in the present report, except with regard to matters of detail. In size the report exceeds by some 80 pages those of recent years, and this is in itself an indication of how the work of the county medical officer goes on increasing from year to year with apparently no limit.

Hygiene of the Lung in Health and Disease. By PROFESSOR DR. LEOPOLD VON SCHRÖTTER. Translated by H. W. ARMIT, M.R.C.S., L.R.C.P. London: Rebman, Limited. 1907.

"THE object of this little book is to instruct the lay person on the functions of the respiratory organs and on the importance which a free exercise of these functions possesses for the human organism. All harmful influences which are capable of producing disease of the lungs will be dealt with, and the modes of life, which tend to prevent these diseases, will also be discussed." These words from the preface give the author's own description of the scope and purpose of this book. The book is divided into three parts. The first of these deals with the anatomy and physiology of the respiratory apparatus, and the second with the "care of the healthy lung." The second part includes instruction as to the ventilation, lighting, heating, and cleaning of the house, school, or factory. Clothing, bodily exercise, and other essentials for a healthy life are also fully insisted upon. Part III describes some of the more common diseases of the lungs and, in particular, phthisis pulmonalis. It is all simply and yet well done, and eminently fitted for the purpose for which it has been written. Special credit is due to Dr. Armit for giving us a most readable translation.

There are sixteen illustrations throughout the text, which add in no small measure to its elucidation. We have every confidence in recommending this book to our readers.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

MEDICINE.

"Spontaneous Pneumothorax," or Pneumothorax in those Apparently Healthy. By W. F. Hamilton, M.D. (*Montreal Medical Journal*, July, 1909).—Dr. Hamilton reports altogether five cases of what seemed to him spontaneous pneumothorax.

Case I.—The patient, a joiner, had been confined to bed for six weeks, when he quite suddenly had some slight pain in the right side of the chest. This passed off, but about a week later he had a severe attack in the same site, and a few moist crackling râles were to be heard over this area. Next day dyspnœa, with all the signs of right-sided pneumothorax, set in. Improvement gradually took place, no signs of fluid being present at any time. He made a good recovery, and up to the present, a period of ten years, enjoys excellent health, there being no signs of tuberculosis, or history of it in the family.

Cases II and III were both tubercular, and there was no doubt as to the etiology.

Case IV.—The patient, an architect, æt. 24, with a good family and personal history, woke one Sunday morning with pain on right side and front of the chest. He took his place in the church choir that day, but immediately after service went to bed. When seen next day, pulse, temperature, and respirations were normal, and the heart was displaced to the left; on the right side of the chest the percussion note was unusually resonant, the respiratory murmur amphoric, and the coin sound present. There were never signs of fluid, and the recovery was rapid, the patient enjoying excellent health without any signs of pulmonary disease up to the present time.

Case V.—The patient, a stenographer, æt. 18, family and personal history good, was seized with severe pain in the chest and marked dyspnœa one evening. He admitted to severe exertion in running several miles some days before; otherwise there were no apparent etiological factors. He showed all the signs of right-sided pneumothorax, and in a few days fluid was shown to be present both by ordinary methods and by the fluoroscopic screen. There was no fever, and the fluid caused no embarrassment. The course was rapidly favourable, and he was still in good health eighteen months after leaving hospital.

CASE VI.—The patient, a man of 41, got up not feeling quite himself, and on going out for a walk felt weak and faint. On returning home something gave way in his chest, dyspnœa came on, and he fainted. When seen some days later, the percussion note on the left side was hyper-resonant, the heart displaced to the right, the respiratory murmur distant, and coin sound absent. Hippocratic succussion appeared some days later. He remained afebrile, and made an uninterrupted recovery.

CASE VII.—The patient, æt. 24, went to bed in good health after walking 2 miles, and awoke at 2 A.M. with severe pain in the left side of the chest near the heart. The pain was stitch-like, recurrent, and associated with cough. On the second examination all the signs of pneumothorax were present. His family history was good, and frequent examinations of his sputum for tubercle bacillus were all negative. He progressed favourably, and when last examined two months later, no signs of pneumothorax were present.

Dr. Hamilton, on reviewing these cases, points out that three undoubtedly occurred while the patients were at rest in bed, Cases I, IV, and VII, and in Case VI the patient did not "feel himself" on getting up in the morning; and that this form of pneumothorax seems to be first experienced while the patient is in bed, as in the cases quoted. But he thinks that while the pleural opening may arise during sleep, it is more likely that the originating cause—a sneeze, sudden strain, or great exertion—may have occurred some hours before; and that the process is a slow one, the opening small, possibly valvular, and the escape of air and, in addition, the collapse of the lung may be hindered by pleural adhesions.

When considering the four conditions usually causative in such cases, viz.—(1) rupture of an emphysematous vesicle; (2) rupture of a pleural bleb; (3) tearing of the pleura; and (4) atrophy of the visceral pleura—he admits that from a clinical standpoint any or all of them may be present in those who are apparently healthy, and that, while it is impossible to draw conclusions from such a small number of cases when compared with the similar cases of spontaneous pneumothorax reported by Drs. Fussell and Riesman, they show the following common characteristics:—

1. They occur in healthy individuals, and mostly in young men.
2. Symptoms first appear at night or in the early morning.
3. There is usually no formation of fluid.
4. Febrile reaction is rare.
5. The patients usually make a good recovery.—J. R. C. GREENLEES.

SURGERY.

The Treatment of Fistulæ by Injections of Bismuth Paste.

By M. Lance (*Gazette des Hôpitaux*, 9th March, 1909).—During the past year the American surgeons have directed much attention to a new treatment for fistulæ and suppurating cavities. Beck, of Chicago, in studying the radiographic appearances of fistulous tracks, injected a mixture of vaseline and bismuth subnitrate, liquefied by heat, to render the tracks perceptible by the Roentgen rays. To his surprise the sinuses rapidly closed, and this diagnostic technique was then tried as a means of treatment in other cases.

The principal indications for its use are—

1. *Pathological fistulæ.*—In cases arising from acute abscess after cessation of the acute inflammation, suppurative arthritis, "cold" abscesses, tubercular adenitis, Pott's disease, coxalgia, white swelling, fistula in ano, and in compound fractures.
2. *Operative fistulæ.*—After drainage of laparotomy cases, pancreatic operations, prostatectomy, excision of tuberculous kidney, and empyema cavities.
3. *Diseases of the eye.*—Dacryocystitis.
4. *Rhinology.*—Chronic suppuration of the frontal, ethmoidal, and maxillary sinuses, and ozæna.
5. *Otology.*—External otitis, middle-ear suppuration, and as a dressing after mastoidectomy in place of iodoform gauze.
6. *Throat diseases.*—Peritonsillar abscess, chronic follicular tonsillitis.

Acute diseases are never treated by this method, as an intense reaction might follow.

An ordinary syringe is used, previously boiled carefully, and the following paste injected:—Subnitrate of bismuth, chemically pure, 1 part; vaseline, 2 parts. The mixture is made during boiling of the vaseline, and the paste is sterilised in the autoclave. For use it is melted on a water bath, then cooled, and injected just before it solidifies. The sinus is carefully emptied of its contents before being injected, and the paste slowly expressed from the syringe into the track. If there be several openings, all except one are compressed and closed during the injection. Finally, the syringe is withdrawn and the injection held in by compression till it solidifies. Sometimes one injection is sufficient, but usually more are required, at varying periods of from two days to a fortnight.

How does this influence the condition? The effect is partly mechanical, distending all spaces and preventing them being filled with exudate, also acting as a scaffold for cicatricial tissue, while there is also a chemical bactericidal action from the presence of bismuth, this latter effect being shown by the sterility of the discharge after the first injection, provided always there is no sequestrum left behind, and no space left unfilled.

A difficulty is presented by the fact that cases of poisoning may be got from pure bismuth subnitrate. This intoxication presents either in an acute type, with dyspnœa, tachycardia, subnormal temperature, convulsions, and cyanosis due to methæmoglobin, which may lead to death; or in a chronic form, with stomatitis, white tint of the buccal mucous membrane with blue line, ulceration about the teeth, painful intestinal catarrh, and sometimes a desquamative nephritis leading to a fatal issue. After employment of Beck's paste, only the latter form of slow poisoning has been observed.

Thus, the employment of the paste must be carried out with discretion and a full knowledge of what may occur in unsuitable cases. In children especially it is contra-indicated. In suitable cases it may prove very useful.—SPENCER MORT.

GYNÆCOLOGY AND OBSTETRICS.

Post-mortem Findings and Late Results after Panhysterectomy for Carcinoma. By Mr. Stanley Boyd (*Proceedings of the Royal Society of Medicine*, Obstetrical and Gynæcological Section, January, 1909).—In this paper Mr. Boyd describes a case in which the uterus was removed by Kelly's method of abdominal panhysterectomy. The ureters were freely defined, and the separation of the bladder from the uterus gave rise to some difficulty on account of the firm fibrous nature of the connective tissue in this region, but there was no sign of new growth invading along the ureters or into the pelvic connective tissue. On the sixth day after operation a small amount of urine was noted to be coming from the vagina. The fistula gradually narrowed to a pin-point opening surrounded by a frill of mucous membrane. Nearly five years later the patient died after an operation for perinephric abscess. The *post-mortem* examination revealed no sign of recurrence of the malignant disease; there was foul cystitis; the right ureter was completely occluded in a mass of cicatricial tissue just before its entrance into the bladder; the right kidney was totally disorganised, and was part of a large perinephric abscess which had burrowed upwards and had led to a right-sided empyema. The occlusion of the ureter was a gradual process, and had the condition been diagnosed earlier nephrectomy would have been indicated, but, unfortunately, the patient had passed out of Mr. Boyd's observation.

In the discussion which followed, similar cases were related, and Mr. Boyd referred to Wertheim's recent paper, in which necrosis of the ureter was noted ten times in the last 158 cases of his operation. Spontaneous closure might be looked for in most of such accidents, but the later history was important.—E. H. L. OLIPHANT.

A Case of Sellheim's Cæsarean Section. By Dobbert, of St. Petersburg (*Zentralbl. f. Gynäk.*, 13th March, 1909).—The patient was a primigravida with a true conjugate of less than 3 inches, admitted on the third day of labour, twelve hours after the rupture of the membranes, and after repeated examinations by a midwife. The temperature was over 102° F. after a severe rigor, and the pulse was 120. As the mother was anxious for a living child, the modified Cæsarean section was selected. After the incision of the abdominal wall the parietal peritoneum was stitched to the skin over the whole wound; the uterine peritoneum was incised and loosened and then stitched to the peritoneum in the abdominal wound; at its upper part, where it is firmly adherent, the catgut suture was reinforced with wire through skin and uterine muscular wall. The uterus was then incised, and the edges of the wound held up with blunt hooks during the removal of the child, and was then sutured into the abdominal wound, again supported by wire suture at the upper angle. The fistulous opening was dressed with iodoform gauze, and the uterine cavity was occasionally washed down with hydrogen-peroxide. On the twenty-eighth day longitudinal incisions about $\frac{1}{2}$ cm. from and internal to the skin edges freed the uterus sufficiently to allow the uterine wound edges to be sutured, and the abdominal wound was closed separately. Mother and child did well. The author believes the operation of great use in infected cases.—E. H. L. O.

Adrenalin Injections in Cæsarean Section. By Dr. Bogdanovics, of Budapest (*Zentralbl. f. Gynäk.*, 20th March, 1909).—A case is related where, after suturing of the uterine wound, the uterus remained flaccid in spite of massage and of hot applications. The hæmorrhage was continuous and alarming. (Some fragments of torn membrane had been pushed into the vagina with iodoform gauze, aod some gauze had been left in the uterus as packing.) A few injections of adrenalin into several parts of the uterine wall brought on instant firm contractions which permanently arrested the hæmorrhage.—E. H. L. O.

Spontaneous Laceration of the Umbilical Cord during Labour. By F. Unterberger, of Rostock (*Zentralbl. f. Gynäk.*, 3rd April, 1909).—The rarity of this accident and its medico-legal importance make records of its occurrence of importance. Dr. Unterberger relates two cases in which the laceration took place in full view of the observer. In the first case the labour was rapid, and on the birth of the head it was seen that the cord was twice round the child's neck. Before it could be released a strong bearing-down pain expelled the child and the cord was torn clean through. Both ends were ligatured forthwith, as also in the second case, so it is not quite clear from the report whether the statement that "no blood was lost" implies that the torn ends did not bleed, or whether it means that with prompt attention no blood need be lost. The second observation was similar, though the cord was only once round the child's neck. In this case the cord began to give way on the convexity of the loop; the amnion sheath gave way first, then both arteries, and, lastly, the vein. The sheath on the concavity of the loop did not give way at all. Forssell in one case had found a diminution of elastic tissue, but in these two cases microscopic examination revealed nothing abnormal in the structure of the cord. The elastic tissue of the veesels, as shown by Weigert's stain, was abundant—much more so than in some other umbilical cords examined as controls. The essential interest of the cases lies in the observation that a bearing-down pain is strong enough to tear through an ordinary cord. The author thinks this occurs more easily when the vessels are gorged with blood.—E. H. L. O.

Placenta Prævia in its Clinical Aspect. By B. Krönig, of Freiburg (*Zentralbl. f. Gynäk.*, 10th April, 1909).—The author insists on the gravity of this accident. The tendency of recent literature has been to make light of the danger, Martin, for instance, asserting that if the patient has been seen early, the death of the mother should be looked on as the result of mistreatment. Krönig has gone over his case-books and selected a series of twenty cases in his and in Hegar's clinique, and relates them in detail. In all of them the patients had been in the wards for a considerable time, or at anyrate had not suffered in general condition from hæmorrhage before admission, nor had any of them been examined in any way by persons not on the hospital staff. An analysis of the cases shows in *all the cases* the bleeding during labour ceased after the breech had been drawn down into the cervix, after the bipolar version according to Braxton Hicks' method, in some instances after metreurysis had failed. The most dangerous time is after the birth of the child, during or after the expulsion of the placenta. Credé's method often failed, and the after-birth had to be removed by insertion of the hand. Hot douches, and even packing the uterus and vagina with gauze sometimes failed to arrest the hæmorrhage, as the gauze became sodden. Of the twenty cases six mothers died, one of sepsis on the tenth day, and of the children sixteen died. If the labour comes on before term the risk to the mother is not so great as at term. The author is of opinion that if the bleeding comes on at the onset of labour, and asepsis has been preserved Cæsarean section should be performed so that undue stretching of the lower uterine segment may be avoided. He has not found metreurysis effective, for this stretches the lower segment, just as does the child's breech. Dr. Krönig promises a relation of all his cases of placenta prævia.—E. H. L. O.

DISEASES OF THE THROAT AND NOSE.

Modern Treatment of Syphilis especially with regard to the Upper Respiratory Passages.—Dr. W. A. Lieven contributed a paper of interest when opening the discussion upon the modern treatment of syphilis at the January meeting of the Laryngological Section of the Royal Society of Medicine. He pointed out that considerable progress had been made in diagnosis now that the spirochæta pallida had been found, and that important deductions from the investigations of Wassermann, Bruck, and Neisser could be made in connection with the study of the organisms. Clinical experience in the past had been confirmed by recent experimental work, such as that of Neisser in animals, and the result was to regard mercury and iodide still as the most important, if not the only reliable, remedies.

It should be noted, however, that Dr. Lieven pointed out that the treatment of this disease by the mouth was not regarded favourably in Germany, because it was generally believed there that this method was insufficient to obtain satisfactory results. As a result of seventeen years' practice in Aix-la-Chapelle, he stated that after no other form of treatment were there so many severe symptoms in connection with the central nervous system as after the pill cure so commonly adopted in this country. While hypodermic injections were largely used, the method most to be recommended was that of inunctions properly carried out.

The laryngologist has not often an opportunity of observing a case of this disease at the beginning, and possibly most of his cases are in the tertiary stage, the condition in which iodide is the sovereign remedy—30 grains daily to be given. While ulcerations of the mucous membranes were taking place Dr. Lieven recommended iodide of potash to begin with, but as soon as the ulcers showed a tendency to heal inunctions were started. When the ulcers healed, the iodide was stopped, and iodipin injections were employed along with the rubbings. These two agents, on account of the prolonged effect, might be expected to prevent relapse when iodide of potash alone would not do so.—J. Macintyre.

Acute Catarrh in the Nostril.—Dr. R. Spira (*Journal of Laryngology, Rhinology, and Otology*, February, 1909), speaking of the treatment of acute catarrh in the nostril, refers to the very great trouble which the affection usually gives notwithstanding the many remedies which have been recommended. As the result of considerable experience, he considers that one of the excellent sedatives at present at our disposal is the adrenalin inhalant, which consists of adrenalin hydro-chloride, 1 part to 1000, and 3 per cent of chloretone in a neutral oil basis. This is best used in the form of a spray or a paint to the mucous membrane. At intervals he also recommends the painting of the mucous membrane with coryphin. For the pain or malaise so often present, and referred to the forehead and temple, he also recommends the brushing of the parts with coryphin and the administration of aspirin internally. A few drops of the coryphin applied to the membrane of the nostril also often gives great relief when sleep cannot be got from the closing of the nostrils.

—J. Macintyre.

Septic Sore Throat.—Considerable attention has lately been paid to the question of septic, and apparently infectious, sore throat in cases which are not diphtheritic. Dr. J. O. Hollick, in the *Lancet* of 19th December, 1908, draws attention to an outbreak which occurred in the Midland Counties Idiot Asylum last year, of a pharyngitis and tonsillitis of an infectious nature, at first thought to be due to the Klebs-Loeffler bacillus.

The symptoms were as follows:—Feeling of malaise, pains in the back and in the neck up to the occiput, and headache; the evening temperature often 104° F., and the morning temperature 100° F.; slight soreness on one or both sides, and difficulty of swallowing; the submaxillary and glands adjacent to the angle of the jaw and in the triangles of the neck slightly enlarged and tender; tonsils with creamy-white secretion, and angry-looking areola of inflammation extending to the anterior pillar of the fauces; the uvula swollen and intensely œdematous; no follicular exudation on the tonsils; the urine febrile and, in some, with slight trace of albumen. In from two to four days the symptoms and local signs decreased, the glandular swelling and tenderness remaining for some days after the clearing up of the throat symptoms. In connection with this epidemic two cases of cutaneous erysipelas of the foot and leg occurred. Several of the patients with the throat symptoms and glandular enlargements showed a tendency to relapse if allowed to get up within too short a period of subsidence of temperature.

Subsequent examination of the throat showed an absence of diphtheria bacilli, but plentiful streptococci and staphylococci.

A similar but very severe epidemic occurred at a private preparatory school. The history seemed to be that a boy had returned to school who had had a sore throat. Two or three weeks later a boy was seized with convulsions. He complained of no sore throat, although the glands were enlarged and tender. This was followed by a spray of creamy secretions over both tonsils. Four boys on the same day were put to bed with slight temperature, tenderness over the cervical glands, headache, and malaise.

In only one case were Klebs-Loeffler bacilli found. A feature of the epidemic as it spread through the school was the slight tonsillar and pharyngeal symptoms in the older boys, from 12 to 14 years of age. In the younger boys, from 10 to 12, there was sharp febrile disturbance, pain in the throat, and mischief in the glands. Some showed signs of heart dilatation and albuminuria of a transitory nature. The lymphoid tissues showed signs of congestion from two to three weeks after the throat discomfort, and discomfort in the nostril continued for some time as well.

During the epidemic it was also noticed that a slight pharyngitis occurred in some of the adult people (masters and servants), with no serious constitutional disturbances. Dr. Hollick very properly points out that a streptococcal sore throat ought always to be looked upon seriously, and that we should remember the persistent properties of the micro-organism, resulting in inflammation of the gland to be followed by constitutional disturbance and anæmia.—J. MACINTYRE.

DENTAL SCIENCE.

The Treatment of a Denture, Swallowed and Impacted in the Œsophagus, by means of Killian's Œsophageal Tube.

By Philip Turner, M.S. (*Proceedings of the Royal Society of Medicine*, Odontological Section, January, 1909).—The patient was seen about six hours after the accident. The *x*-rays showed the denture to be impacted at the level of the upper border of the manubrium sterni.

The denture was about an inch and a quarter long and 1 inch broad, supporting a single incisor, and had two hooks projecting from it. The patient was anæsthetised and the head extended over a sand-pillow. A Killian's direct-vision œsophageal tube was now introduced, and when it had passed about 9 inches beyond the teeth, the denture could be easily seen. A little manipulation with a long hook freed the denture from the œsophageal wall. It was found too large to be drawn through the lumen of the tube. The denture was then fixed by a hook, and an attempt made to withdraw denture, hook, and tube together. The denture was felt to escape just as they passed the pharynx. The patient had come round from the anæsthetic to such an extent that the reflexes for swallowing and coughing were present.

The tube was again introduced, but could be passed the whole length of the œsophagus without revealing the denture, which had presumably been projected by the reflex swallowing movements along the œsophagus, this time without impaction. The denture was passed *per anum* on the fourth day, having given no trouble in its passage through the alimentary canal.

The author points out that although the denture was too large to pass through the tube, yet, by means of the latter, it was easily seen and safely removed from the œsophageal wall. He further mentions a case of impaction of a pin in the œsophagus of a child. The pin was easily seen through the tube, and withdrawn.

Mr. Turner draws attention to the seriousness of such objects as dentures with wires, pins, &c., being impacted in the œsophagus; for unless the foreign body be quickly removed, ulceration and perforation of the œsophageal wall are likely to occur leading to fatal suppurative mediastinitis. He also emphasises the risk attached to the use of a coin-catcher or probang in such cases, as they are liable to cause further laceration.

He claims the following advantages for the use of the direct-vision œsophageal tube in locating foreign bodies in the œsophagus:—

1. The foreign body can be distinctly seen and manipulated either by a hook or by a pair of long forceps.

2. Under normal circumstances the walls of the œsophagus are in contact. When a foreign body is extracted with the help of one of these tubes, the walls of the œsophagus are held apart, and instead of being dragged along the œsophageal wall it passes upwards into a definite space.

3. Since it is possible to see what one is doing, a sharp or projecting edge may be withdrawn under cover of the tube.

4. The foreign body may be drawn up without any preliminary displacement downwards, as necessarily happens with the coin-catcher or probang. This is of great importance, as the point which is caught in the œsophageal wall naturally will point downwards, and any attempt to push the foreign body downwards will probably produce a laceration.

Mr. Turner mentions that Dr. Guisez exhibited an œsophageal tube at the French Surgical Congress, in Paris, which has a hinge situated about an inch and a half from the lower end. By rotating the eye-piece the hinge opens, causing the lower end of the tube to expand, and thus making a larger space into which the foreigh body can be drawn.—J. FORBES WEBSTER.

Books, Pamphlets, &c., Received.

Sprains and Allied Injuries of Joints, by R. H. Anglin Whitelocke, M.D., M.C. Edin., F.R.C.S. Eng. London: Henry Frowde and Hodder & Stoughton. 1909. (7s. 6d. net.)

House-Drainage, Sewerage, and Sewage Disposal in relation to Health, by Louis C. Parkes, M.D., D.P.H. London: H. K. Lewis. 1909. (2s. net.)

Common Disorders and Diseases of Childhood, by George Frederic Still, M.A., M.D. Cantab., F.R.C.P. Lond. London: Henry Frowde and Hodder & Stoughton. 1909. (15s. net.)

Aids to Forensic Medicine and Toxicology, by William Murrell, M.D., F.R.C.P. Seventh edition. London: Baillière, Tindall & Cox. 1909. (2s. 6d. net.)

Southall's Organic Materia Medica, by John Barclay, B.Sc. Lond., F.C.S. Seventh edition. Revised and enlarged by Ernest W. Mann. London: J. & A. Churchill. 1909. (7s. 6d. net.)

The Cell as the Unit of Life, and other Lectures, an Introduction to Biology, by the late Allan Macfadyen, M.D., B.Sc. Edited by R. Tanner Hewlett, M.D., F.R.C.P., D.P.H. London: J. & A. Churchill. 1908. (7s. 6d. net.)

Inborn Errors of Metabolism, by Archibald E. Garrod, D.M., M.A. Oxon. London: Henry Frowde and Hodder & Stoughton. 1909. (3s. 6d. net.)

Graphic Methods in Heart Disease, by John Hay, M.D., M.R.C.P.; with an Introduction by James Mackenzie, M.D., M.R.C.P. London: Henry Frowde and Hodder & Stoughton. 1909. (7s. 6d. net.)

The Year-Book of the Scientific and Learned Societies of Great Britain and Ireland. Compiled from official sources. Twenty-fifth annual issue. London: Charles Griffin & Co., Limited. 1908.

The Edinburgh Stereoscopic Atlas of Obstetrics, edited by G. F. Barbour Simpson, M.D., F.R.C.P.E., F.R.C.S.E., and Edward Burnet, B.A., M.B., Ch.B. With a Preface by Professor Sir J. Halliday Croom, M.D., F.R.C.P.E., F.R.C.S.E., F.R.S.E. In four sections, each containing 25 subjects, with descriptive text Section IV. London: The Caxton Publishing Co. 1909. (Price for the four sections, 84s. net.)

Drugs and the Drug Habit, by Harrington Sainsbury, M.D., F.R.C.P. With 11 illustrations. London: Methuen & Co. 1909. (7s. 6d. net.)

GLASGOW.—METEOROLOGICAL AND VITAL STATISTICS FOR THE FOUR WEEKS ENDING 22ND MAY, 1909.

	Week ending			
	May 1.	May 8.	May 15.	May 22.
Mean temperature,	46·0°	51·6°	47·7°	52·7°
Mean range of temperature between day and night,	25·5°	43·0°	33·1°	43·0°
Number of days on which rain fell,	4	0	3	4
Amount of rainfall, ins.	1·17	0·00	0·21	0·37
Deaths registered,	303	273	254	286
Death-rates,	18·1	16·3	15·2	17·1
Zymotic death-rates,	2·8	2·0	1·1	2·9
Pulmonary death-rates,	5·6	4·1	4·5	4·4
DEATHS—				
Under 1 year,	67	60	52	50
60 years and upwards,	63	49	60	76
DEATHS FROM—				
Small-pox,	...	...	...	...
Measles,	...	...	...	2
Scarlet fever,	3	6	3	3
Diphtheria,	4	...	3	4
Whooping-cough,	34	26	8	22
Fever,	3	...	...	...
Cerebro-spinal fever,	2	2	1	1
Diarrhœa,	8	8	8	8
Croup and laryngitis,	...	...	..	...
Bronchitis, pneumonia, and pleurisy,	54	50	55	56
CASES REPORTED—				
Small-pox,	...	...	...	...
Cerebro-spinal meningitis,	2	3	1	3
Diphtheria and membranous croup,	22	28	24	24
Erysipelas,	19	21	21	27
Scarlet fever,	68	57	79	81
Typhus fever,	...	...	...	...
Enteric fever,	7	6	5	7
Continued fever,	...	...	1	1
Puerperal fever,	3	1	4	...
Measles,*	101	60	56	76

* Measles not notifiable.

SANITARY CHAMBERS,
GLASGOW, *26th May, 1909.*

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